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The Journal of Higher Education MAY, 1954

The Great Issues Course at Dartmouth

By ARTHUR M. WILSON

An Adventure in General Education

ALTHOUGH required courses for students in the first two years are a familiar part of ordinary college work, a required course for Seniors, shared by all the members of the class, is an innovation in the usual mid-century procedures of American higher education. The course that occupies this privileged—and exposed—position in the Dartmouth curriculum is the one in Great Issues, which was proposed by John S. Dickey when he became president of Dartmouth in 1945. The course was first given, after a year of somewhat arduous and anxious preparation, in the academic year of 1947–1948.[1] After having lived through a probationary period, at the end of which it was carefully scrutinized by the faculty Committee on Educational Policy, the course was voted by the faculty in 1953 to be a permanent part of the Dartmouth curriculum:

> Based upon the clear evidence that the Great Issues course has left an indelible and a salutary effect upon those who have taken it [wrote the Committee on Educational Policy], that it has added an outstandingly distinctive and valuable element to the curriculum, and that it has attracted the favorable attention of the American educational world, our conclusion is that it should no longer be regarded as an educational experiment but that it should be continued as a permanent fixture in the curriculum.[2]

From the educational and pedagogical point of view, Dartmouth's

[1]For earlier discussions of Dartmouth's experience with Great Issues, *see* Arthur M. Wilson, "Dartmouth's Venture in Great Issues," *Higher Education*, IV (May 15, 1948), pp. 209–10; the same, "The 'Great Issues' Course at Dartmouth College," *American Political Science Review*, XLIII (February, 1949), pp. 91–94; *and* James P. Poole, "The First Five Years: an Appraisal of 'Great Issues,'" *Dartmouth Alumni Magazine* (February, 1953), pp. 18–23.

[2]Poole, *loc. cit.*, p. 23.

course in Great Issues is worthy of remark as part of the great effort being made by our colleges to grapple with the problem of general education. As was pointed out by the American Political Science Association's Committee for the Advancement of Teaching, this type of course (like the great books type) is an attempt "to bring important bodies of knowledge into more functional focus."[8] A good many institutions have experimented with, or borrowed from, the great issues approach. Among all these, Dartmouth's experiment was one of the earliest, if not the very earliest, and it is perhaps the only one that requires all Seniors to take the course. This being so, the Dartmouth experiment is unique in providing almost laboratory-like conditions for appraising its effects. All kinds of students must take it, with all kinds of intellectual interests and previous preparation. Requiring this course therefore raises to the maximum the potentiality of influencing deeply all the members of a senior class and endowing them—at least to some extent—with a common intellectual experience.

The inherent difficulties of administering so large a body of students as a unit—the registration has never been lower than 459 and averages 550—have been cheerfully accepted for the sake of attempting to achieve some very stirring objectives. These objectives, the statement of which has become very familiar to the successive classes of Seniors, were comprehensively set forth in the preamble to a questionnaire that in 1952 was circulated among the alumni of the course:

I. To provide for all Dartmouth graduates a better transition from their last year of liberal arts education in conventional classroom forms and texts to the forms and reading sources of a continuing adult education; in other words, to provide an experience in applying and carrying on one's general education.

II. To give all seniors, regardless of major and elective studies, a common intellectual experience so as to stimulate out-of-class discussions, which are an important part of self-education and of developing maturity.

III. To develop among all Dartmouth seniors a sharper awareness of the values involved in great issues that confront men today, thereby promoting a heightened sense of common public purpose and individual public-mindedness.

OF COURSE, the achievement of these objectives—or even the aiming at them—requires a certain amount of institutionalization. Like any other course, therefore, Great Issues has its teachers, its required reading, its term papers, and its examinations. A description of the procedures and mechanics of the course may, accordingly, give the reader the concrete knowledge he needs to make an estimate for himself of the utility and effectiveness of this particular approach to the problem of general education.

The principal responsibility for the course devolves upon its director, a member of the faculty who spends his full time on the course for the year of directorship, a term which now extends, in the interest of greater

[8] "Integration and Cooperation in the Social Sciences," in the Committee's report, *Goals for Political Science*. New York: William Sloane Associates, Inc., 1951. p. 163.

continuity, from mid-year to mid-year instead of from September to September. The system of rotating the directorship has the wholesome effect of preventing anyone from coming to regard the course as his private appanage; and, conversely, it is a practice conducive to making the faculty feel that the course really belongs to them. The directors thus far have been successively the president of the college and professors of biography and government, zoology, English, economics, history, and mathematics.

The director is assisted by a steering committee, the members of which not only participate in determining the outline of the course and in arriving at policy decisions but also attend the class sessions and share in marking the various term papers in the course. For this work committee members receive a reduction of three hours in the amount of their regular teaching. The steering committee is composed of professors appointed by the dean of the faculty in approximately equal representation from the divisions of the humanities, the natural sciences, and the social sciences, and from this membership are recruited the successive directors of the course. In addition, the steering committee includes a representative of Dartmouth's Associated Schools—for almost 24 per cent of the men in the course are Seniors who are already taking their first year's work in the Medical School or the Tuck School of Business Administration or the Thayer School of Engineering—plus a representative of the college library, plus the two instructors in Great Issues. The steering committee is a revolving committee and in seven years of operation has had in its membership the president of the college, three deans, and 19 senior members of the faculty, drawn from the departments of art and archaeology, biography, botany, the classics, economics, English, government, history, mathematics, philosophy, sociology, and zoology.

Great Issues has had the good fortune to secure a large number of exceptionally well-qualified persons to lecture in the course. It is not possible in an article of this compass to give all the names in a list that now runs to much over a hundred. But perhaps it will not be amiss to mention that among the lecturers have been Robert Frost, James Bryant Conant, David Lilienthal, Clarence B. Randall, Norman Thomas, Barbara Ward, Harold C. Urey, Charles P. Taft, Dean Acheson, Thurgood Marshall, Geoffrey Crowther, Charles Malik, V. K. Krishna Menon, Archibald MacLeish, Lewis Mumford, Sidney Hook, and Irwin Edman. The principle has always been enforced that remarks made in the lecture hall have the privilege of being "off the record," a condition that has very frequently made for extraordinary candor on the part of lecturers.

The lectures in the Great Issues course take place on Monday nights and Tuesday and Thursday mornings. This arrangement results almost without exception in the Monday night lecturer's being able to stay over and meet the class for an hour of questioning on Tuesday morning. Much is gained by this procedure, although it is done at the cost of having to forego dividing the class

into discussion sections. On balance, it is believed that the class probably gains more from a second exposure to men who in many cases can truthfully be described as "living documents" than it would from using that time in discussion sections. This is a debatable point, yet it is certainly indisputable that during the Tuesday morning sessions a rapport is built up between lecturer and audience that frequently gives these sessions greater impact and effectiveness than the more formal sessions (and the more formal discourses) of the Monday night meetings of the class. In as much as it has always been a tacit convention of class procedure that the students ask the questions and the faculty never does, the class gets used to putting questions to the speaker and, in the course of a year, becomes quite expert in phrasing comprehensive and searching questions. Visiting lecturers have often commented, after these Tuesday morning periods, on the excellence of the questions.

In contrast to the lectures on Monday nights, given by visiting lecturers, and to the question sessions on the following Tuesday mornings, the Thursday sessions are frequently employed for sketching in the factual background in anticipation of, and preparation for, the major lectures the following Monday nights. These lectures are often given by members of the Dartmouth faculty, more than fifty of whom have by now participated in the course.

THE general outline and subject-matter of the Great Issues course, while being constantly subjected to review by an anxious and brooding steering committee, have remained approximately the same throughout the years. This is necessitated by the fact that great issues do not change very much or very fast. The steering committee, in setting the goals for each year's work, has always tried to keep in mind the definition of a great issue that Archibald MacLeish formulated for the committee's benefit—namely, one that has historical depth, current timeliness, and projection into the future. A definition such as this automatically tends to eliminate the ephemeral, however noisy, and emphasize the abiding, however inconspicuous. It implies that issues can be grasped in their ultimate fundamentals only in terms of history and philosophy and of men's hopes and fears.

Since part of the purpose of the course is to make the Seniors more sophisticated in the use of mass media, the beginning of the course is devoted to lectures regarding newspapers and radio, including a brief examination (as, for example, that presented by lectures that I. A. Richards has given in the course) of the psychological problem of communication itself. The course then moves on to a discussion of various problems primarily domestic in nature: first, the problem of national security and individual freedom; second, the problem of the "welfare state"; third, the responsibilities to our society of both management and labor; fourth, the causes of bigness in American life and its manifold effects; and, fifth, race relations. There follows a section of the course, scientific in nature, in which an opportunity is given for discussing the impact

of scientific thought upon modern life, exploring the applicability of scientific techniques to the social sciences, distinguishing between science and technology, estimating the effect of the impact of technology upon the world, and discussing problems of demography. This amount of work takes up the first semester of the year's program.

The discussion of these scientific problems, especially those dealing with population pressures, leads by an easy transition to an examination of the great issues implicit in American foreign relations. The outline of the course presents these issues as twofold, but in momentous combination: "Survival" and "The Responsible Use of Power." The problems of our relations with the U.S.S.R., of the formulation of foreign policy in a democracy, of the questions posed by foreign aid and high tariffs and Point Four, of American relations with the United Nations and with the nascent nationalism of the Middle East and the Far East—all these inescapable issues are subjected to recurring and perennial investigation.

The course concludes with a series of lectures on the general theme of the impingement of all these great issues upon each individual. This is *par excellence* the humanistic side of the course, and this is its goal and climax. The planners of the course have consistently attempted year after year to bring the discussion of issues up to the point where their solution clearly calls for an application of choice and of values. The intent of the course may therefore be fairly said to be humanistic. And what starts out as something that looks suspiciously like a course in current events ends by examining the great issues in terms of what religious insights can contribute toward the understanding of them, and of how much and in what ways creative factors and ethical considerations add to an understanding of, and meaningful participation in, the history of our times. Lectures on the arts, philosophy, and religion by such men as Irwin Edman, Paul Tillich, Robert Frost, and Reinhold Niebuhr, therefore, conclude the lecture part of the course.

IT SHOULD, of course, be admitted at once that the treatment of so many issues precludes the systematic examination in depth of any of them; and that, while each lecturer contributes new insights and points of view, none has the time to explore his topic in all its details. Yet it should be remembered that the principal purpose of the course is to provide an experience in applying a general education; that it is taken by Seniors, every one of whom brings to the course a considerable amount of general information in addition to the not inconsiderable amount of specialized information stemming from his studies in his major; and that it is possible for the Seniors themselves to educate one another in their discussions together. One could hardly muster up sufficient morale to run the course at all unless one had faith that the second objective of the course was achievable, namely by a "common intellectual experience . . . to stimulate out-of-class discussions." Some years ago the Air Force Academy Planning Board recommended that a great issues course closely modeled on Dart-

mouth's be required of all Air Cadets in their senior year, if and when the Academy should be authorized by Congress. Commenting upon their great issues proposal, the Planning Board referred to it as "a magnificent opportunity for the integration" of each Cadet's intellectual experience at the Academy.

The staple reading assignment for the course—what Robert Frost jocosely tells the class is their textbook—is the daily New York *Times* or New York *Herald Tribune*. Students are expected to read carefully and analytically whichever of these newspapers they choose, and from time to time they are examined upon this by means of objective tests. Besides that, there is other assigned reading, most of it current but apposite material, whether magazine articles, pamphlets, or government documents.

Two experiences in what might be called the study of comparative journalism are assigned during the year. The one for the first semester requires the student to study the news for a given fortnight and then write a paper descriptive of the New York *Times* or New York *Herald Tribune*, the *Chicago Tribune*, and the *Daily Worker*, and to analyze how fairly and responsibly these several newspapers presented the news for the period under study. Besides this, the student is also asked to include in his paper an analysis of how various other newspapers and weekly magazines treated some particular topic of news or continuing news story. Rather elaborate instructions, edited and improved year after year, guide the student in his research for this project. Though probably students can pretty well predict the result before they begin this scanning of the wayward press, nevertheless the process of seeing for themselves as a result of research at first hand always impresses most of them and amazes many. In the 1952 questionnaire, former students were asked, "Do you believe the course increased your discrimination in regard to the quality of newspapers and other media?" Those who definitely thought not were 3.2 per cent; probably not, 6.5 per cent; uncertain, 3.2 per cent; probably yes, 21.5 per cent; definitely yes, 65.2 per cent.[4]

The other exercise in comparative journalism is required during the second semester. This calls upon the student to examine four or five of a number of "journals of opinion, analysis, and review" and to decide, giving illustrations and reasons, which one or two of the magazines he would like to read regularly after graduation. The magazines offered to the student for his choice are numerous, including the *Atlantic Monthly*, *Harper's*, *America*, the *American Mercury*, the *Christian Century*, *Commentary*, *Commonweal*, *Foreign Affairs*, *Fortune*, the *Freeman*, the *Nation*, the *New Republic*, the *Progressive*, the *Reporter*, and the *Saturday Review*.

These two projects are extremely useful in making college students more canny in their use of the mass media of information; and they are an appropriate part of the educational work of any college or university, since clearly they prepare students

[4]For a tabulation of the results of the 1952 questionnaire, *see* Poole, *loc. cit.*, p. 22. This questionnaire was prepared with the assistance of Clark W. Horton, consultant in Educational Research. The results were analyzed by him and by Albert H. Hastorf of the Department of Psychology.

for taking up their responsibilities of citizenship in a more meaningful and sophisticated way. Such exercises do not necessarily have to be deferred until the senior year, however, and it is conceivable that in many ways similar research assignments would prove to be very repaying to students in their first two years. At Dartmouth it has thus far proved most convenient to include these exercises as a part of the Senior's work in Great Issues.

In order to facilitate the students' research for these projects, a special room in the college library has been dignified by the name of the Public Affairs Laboratory. Here may be found the files of a large choice of current newspapers and magazines, together with table space for studying them. An integral part of the course is a succession of wall exhibits making a visual presentation of such topics as the various news sources of a modern newspaper, the action of pressure groups, the comparative study of newspapers, the conflicting arguments regarding tariffs and reciprocal trade agreements, or the steps by which a bill introduced into Congress becomes a law. In the course's occasional objective tests, students are examined regarding their knowledge of these exhibits. The Public Affairs Laboratory also serves both as the administrative center and the conference center of the course. The director, the two instructors in Great Issues, and the clerical staff (consisting of one full-time secretary and a number of student helpers) have their offices there. It is the one place where there is man-to-man contact of instructor and student—the one place where the day-to-day teaching is done—in the course. Moreover, it provides an opportunity for students to be in touch with document and instructor simultaneously. All the teaching members of the steering committee keep regular office hours in rotation there, and there is at least one member of the staff available for consultation during most of the hours that the library is itself open. In addition, handouts of reading material or official announcements, prepared in the form of weekly mimeographed "bulletins," are made from this center. The Public Affairs Laboratory is a very useful room, not only for the facilities it provides, but also for its symbolical significance as the nerve center of an important segment of the college's intellectual life.

In addition to the two projects in the analysis of newspapers and magazines, students are required to hand in from time to time a sort of diary of their impressions of the course, particularly of the lectures in it. It is not intended that they submit mere outlines of what the speakers said—knowledge of that is taken for granted—but rather that they comment upon the lectures, first as they seem to fit into the totality of the course and help to establish (or perhaps confuse) the pattern or trend of the whole presentation; and, second, as they are contrary to or congruent with the student's previous experience or knowledge. "The essence of the journal," reads the memorandum assigning it,

> is your thinking under provocation; and the success of the course will be measured by the amount of provocation it supplies . . . Bring into your com-

ments as much of your experience with people, reading and ideas as seems relevant, even if the result does not bring you out where you expected or wanted to be. The course should be an adventure—not a prearranged tour; and adventures, to be genuine, must involve their share of hardships, hazards and surprises.

Dartmouth's experience with this exercise has been very gratifying. It indubitably makes the Great Issues experience more personal and meaningful. Nor is it impossible or unfair to confer a grade upon such an exercise, for, though it is inherently subjective rather than factual, the student can nevertheless reasonably be held to showing in it a broad exposure to the whole course as well as the ability to state premises lucidly and argue from them logically. Consequently, these "journals" have come to be the most important item in the steering committee's evaluation of the student's work.

A wide variety of similar projects can profitably be experimented with. At one time or another the Great Issues course has required or allowed the study of pressure-group "literature," together with a study of the structure and activities of selected pressure groups; an "autobiography," designed to bring the student to an analysis of his own experience in a liberal-arts education; the selection of one of a list of issues which the student was to explore in depth, adding thereto his own considered convictions; and a study of radio news programs and scripts.

EXAMINATIONS have given the staff less satisfaction than any other aspect of the course. The problem, especially at the end of the second semester, is how to set an appropriate examination and yet get it marked in time to allow the students to march in the Commencement procession. Objective examinations are speedy, but the students frequently object to them as not being an appropriate means for the examination of great issues. The Committee on Educational Policy has remarked that the course's objective examinations could be much improved in the direction of testing for ability in analytical reasoning rather than for straight memory. Doubtless this is true, but the much-bedeviled steering committee has tended to dispose of the problem by recognizing the objective examinations as frankly serving merely a police purpose. The "journal" and the projects, together with an essay-type hour examination and sometimes an essay half of the final examination, are used by the committee as providing by far the preponderant gradable work in the course. Not infrequently the essay question is pre-announced, a method unusually successful in provoking the discussion and promoting the self-education which it is hoped will always be a strong characteristic of the course. Seniors have even appeared in discussions arranged by WDBS, the local undergraduate radio station, trying to analyze these pre-announced questions, which are sometimes issued in designedly oracular phraseology. One year the students were given two weeks' notice that they would be called upon to analyze and evaluate the following quotation, relating it, of course, as much as possible to their total experience in the course:

Real freedom is not freedom from something; that would be license. It is

freedom to choose between doing and not doing something, to act in one way or another, to hold one belief or the opposite. It is never a release and always a responsibility. It is the heaviest burden laid on man, and yet is essential to his being . . . .

Beginning with the current academic year, the faculty has voted to allow grades in the Great Issues course to be reported as simply "Distinction," "Credit," or "Unsatisfactory," although all other grades in the college are still reported on the familiar *A* to *E* scale. "Distinction" will be averaged with the rest of the student's marks as equivalent to an *A;* and so, also, an "Unsatisfactory" carries with it the usual penalties of the forfeiture of three hours' credit and the non-accumulation of honor points. For all the others, "Credit" means the granting of three hours' academic credit; point-averages are determined on the basis of students' grades in all their other courses. At the end of the first semester of the current year about 2 per cent of the students were failed and about 13 per cent were awarded distinction. The new grading system seems to be working satisfactorily, and it may encourage the faculty to experiment with the honors-pass-fail type of grading upon a more extensive scale.

What about the costs of a great issues course? Dartmouth was fortunate in having a Carnegie Foundation grant of $75,000 for the first three years of operation, but since that time has been bearing all the costs herself. As a matter of fact, the size of the class, in proportion to the number of teachers requisite for operating the course, makes the cost per student quite low. Furthermore, since the course is taught by a revolving committee of professors, it not infrequently happens that the courses that they give up in their home departments in order to undertake the temporary and part-time service in Great Issues are either taught by colleagues or temporarily suspended, so that the over-all teaching costs to the college are only slightly increased. Visiting lecturers, who are paid their expenses and a moderate fee standard to all, cost in the neighborhood of $7,000 a year. For a class the average size of Dartmouth's—say 550—the cost per student per semester is, accordingly, relatively low. Were it possible to allow four hours of instruction and credit in the course, thus permitting sections to be added to the present organization of the course, the cost would thereby be considerably increased.

STUDENT opinion is favorable to the course. In reply to the questionnaire circulated by the Committee on Educational Policy in 1952, 800 of the former students commented at length upon the course, besides responding to the brief check-off questions. "All comments were studied carefully," remarked one of the analysts of the results, "and that body of opinion taken as a whole constitutes overwhelming evidence favorable to the course."[5] Moreover, in the same year (1952), two members of the course conducted an opinion survey of the senior class, using sampling, interviewing, and evaluating techniques that had been checked by the professors of statistics and market research at the Tuck School

[5]Clark W. Horton, in the *Dartmouth*, March 7, 1953, p. 2.

of Business Administration. This survey, the so-called Nachman-Drexler report, found that in reply to the question, "To what extent has the Great Issues course made you more aware of the basic issues of our times?" 43 per cent replied "Great extent"; 46 per cent, "Some extent"; 11 per cent, "No extent." To the query, "Has the course provoked discussion on your part?" 98 per cent answered "Yes." To the question, "Do you think Dartmouth ought to drop Great Issues?" 96 per cent answered "No."

Nevertheless, it should be remembered that a required course, especially one required of Seniors—of all persons—is apt to be submitted to a pitiless scrutiny. The students are given to complaining of the objective examinations (which, in consequence of their strictures, have progressively become less important in the course); of the phenomenon that a speaker whose discourse may seem shining and new to part of his audience may seem platitudinous to men majoring in the subject upon which he is speaking; that there should be an opportunity for discussion sections; and that there should be more debates, instead of the summarizing of both sides—and then the choosing of one—which is what the visiting lecturers generally do. These are cogent criticisms; yet experience with trying to operate the course teaches one that there is no criticism so cogent that there is not a counterobjection equally so. Some type of policing by examination is necessary, even, alas, in a course designed to bridge the transition from the modes of undergraduate to the modes of adult education; the risk of being platitudinous to some must be run for the sake of providing a common intellectual experience for all; were there to be sections—and the class continue to meet only three hours a week—the class could not meet the visiting lecturer for a second time on Tuesday morning; and increasing the number of debates would be at the price of reducing the number of issues considered, and furthermore might lead simply to the interesting diffusion of sparks of temperament without really conveying new insights into the problems involved.

In the 1952 questionnaire, men were asked the following question: "As you look back on the course now, how would you evaluate its contribution to your education?" Those who thought it "of little or no value" were 1.9 per cent; "of less value than the average course," 5.8 per cent; "of about the same value as the average course," 15.3 per cent; "of greater value than the average course," 50.8 per cent; "of very great value," 25.4 per cent. When one considers that these men were required to take the course at the price of sacrificing two cherished electives, it is believed that these percentages indicate a substantial endorsement of the value of the great issues idea.

Chemical Research at Colleges[1]

By F. FROMM

A Statistical Study

THE research work done by the chemistry departments of American colleges and universities has received an increasing amount of attention in attempts to evaluate the educational activities of these institutions. In spite of this fact, meager statistics concerning the research performed by the various departments have been published. The statistical studies have been criticized because they were based exclusively on the articles in the *Journal of the American Chemical Society* and were limited to liberal-arts colleges which were not defined in respect to their programs or their size. It was suggested that such statistical studies should be based on a Decennial Index of *Chemical Abstracts*. A compilation of the articles published by the nearly one thousand chemistry departments of university level in the United States in any one decade would, however, be a tremendous undertaking, and one which would go far beyond the facilities of a small college. Instead, a study of the work of the Pennsylvania departments of chemistry during the period 1937 to 1946, as a representative sample of American colleges, seemed a feasible approach.

[1]This is a revised version of a paper presented at the annual meeting of the Pennsylvania Catholic Round Table of Science, Rosemont College, April 11, 1953.

The work was started with the institutions listed in the *College Blue Book*. The size of the chemistry teaching staff and the presence or absence of graduate students was determined from Brumbaugh's *American Universities and Colleges*. Schools which were not represented in both of these reference books were excluded from the study. In all, 46 schools were studied: 18 of them were listed as having graduate students; 28 had only undergraduates.

The total number of chemistry teachers listed by Brumbaugh was considered as the chemistry faculty. Data concerning the chemistry faculties in the different types of institutions are presented in Table I.

It will be noted that the number of chemistry teachers per institution varies only slightly between "publishing" and "non-publishing" institutions. Since the number of professors only (exclusive of instructors and lecturers) may also be of interest, it is indicated in addition to the total size of the chemistry faculty. Brumbaugh's data refer to the status during the time period 1946–47; that is, the period covered by this investigation. As earlier statistics were available for 1938–39 only, Brumbaugh's information was preferred. The names of the teachers (including instructors and lecturers) were taken from the

college catalogues and—in doubtful cases—checked with the data of Cattell's *American Men of Science* and with the department heads to make sure that the list was complete and to ascertain the time each individual served on a given faculty.

This corrected list of names was then used in conjunction with the Fourth Decennial Index of *Chemical Abstracts* for a list of all publications of chemistry teachers (including patents and books of which new editions were counted as separate publications) which had been abstracted at a Pennsylvania institution of higher learning from 1937 to 1946.[2] The abstracts were examined for the title of the paper, the number of authors, and the medium of publication. The statistics reported here are based on the number of abstracts exclusively. The great variety of organs of publication and the corresponding diversity of their formats, as well as the lack of information about the number of pages of the patents, rendered the counting of pages impracticable. Data on the published articles are summarized in Table II.

Altogether, 37 books and 758 contributions to 84 different periodicals were published by the 46 schools during this ten-year period. Although the *Journal of the American Chemical Society* received the largest share, with 284 articles, it accounts for little more than one-third of the published material. It is preferred as a medium of publication by some of the larger laboratories. Hence, statistics based exclusively on it give a lopsided picture of the research activities.

The contributions of the colleges without graduate students are few. Twenty-eight institutions with 92 teachers produced 63 publications in the ten-year period. As a matter of fact, nine schools, or nearly one-third of the total, had no publication whatsoever listed in *Chemical Abstracts* during that time. The other 19 colleges had a staff of 68 chemists; on the average, one of these teachers was credited with about one paper, book, or patent in ten years. Less than half of these publications are the work of one individual; the rest are collaborations of two or more persons, who do not necessarily belong to the same faculty. The faculties of these "publishing" schools and their members vary widely in their scientific productivity, the maximum being 6.0 publications per teacher per decade. If only the 69 professors at these 28 colleges or the 48 professors at the "publishing" schools are considered, the averages come up to 0.4 and 0.5 individual, and 0.5 and 0.7 joint, publications per teacher per decade.

The 18 universities and colleges which enrolled graduate students are represented by 732 abstracts in the Fourth Decennial Index of *Chemical Abstracts*. They had more than 229 teachers listed; unfortunately, the number of chemistry staff members at the University of Pennsylvania was not given by Brumbaugh. The average number of professors at the University of Pennsylvania was therefore estimated from the catalogue, but the number of lecturers and instructors could not be included. The average of about three publications per teacher-decade found for

[2] This part of the work was done as a seminar assignment by sophomore students. I wish to thank Irene Bikulege, Helen R. Golob, Mary Ann Hoben, Rita McCartan, Rita Reba, Betty Woll, and Norma Jean Yacubic for their co-operation. I am especially indebted to Helen Golob for her help in assembling the material in tabular form.

TABLE I

NUMBER OF TEACHERS OF CHEMISTRY IN THE COLLEGES AND UNIVERSITIES OF PENNSYLVANIA WHICH ARE INCLUDED IN THIS STUDY

	All Schools		"Publishing Schools"	
	Number	Average per School	Number	Average per School
(1)	(2)	(3)	(4)	(5)
University—				
All teachers	229	12.7	225	13.2
Professors only	143	8.0	140	8.5
College—				
All teachers	92	3.3	68	3.6
Professors only	69	2.5	49	2.6

TABLE II

AVERAGE NUMBER OF PUBLICATIONS PER TEACHER IN TEN YEARS

	Universities (18)	Colleges (28)	"Publishing Schools"	
			Universities (17)	Colleges (19)
(1)	(2)	(3)	(4)	(5)
All teachers—				
Alone	0.9	0.3	0.9	0.4
In collaboration	2.3	0.4	2.4	0.5
Professors only—				
Alone	1.4	0.4	1.4	0.5
In collaboration	3.7	0.5	3.8	0.7

these schools is, therefore, somewhat high. However, if the number of uncounted teachers reached 50 (which it certainly does not), the average of publications in 10 years would still be three. In other words, then, the average teacher at a school with graduate students produced more than three times as many articles as the average teacher at strictly undergraduate schools. The ratio of individual to joint authorship is quite different from that of the first group. Of the 3.2 papers per teacher-decade, 0.9 are by a single author, while he figures as co-author in 2.3 additional papers. The 18 schools vary widely in their scientific output, from one (5.5 per cent of the schools) which had no publication of chemical interest in ten years to an average of more than 10 papers per teacher-decade. The variations among the individual teachers are greater than in the strictly undergraduate college, ranging from no publication whatsoever to more than 40 per teacher-decade.

A COMPARISON of the 732 publications of 18 schools enrolling graduate students with the 63 papers of 28 colleges in the same period in Pennsylvania seems to confirm the belief that the scientific activity of the smaller schools is disproportionately low. The following

comments are, nevertheless, in order: An exact comparison should consider the content and length, rather than the number, of articles. Generally, the papers from the universities were lengthier (and presumably more substantial) than those from the colleges. The onerous task of counting the pages and weighing the results would, therefore, widen the gap between the two groups.

No valid statistical results can come from a comparison of the work of 229 scientists with that of only 92 unless allowance is made for disparity in the size of the faculties. For this reason the numbers of papers per teacher-decade for the colleges and the universities were determined. The ratio of these numbers for the two types of institution is 1:4.6; that is, the average graduate-school teacher is nearly five times as productive as the average undergraduate college teacher. The breakdown in quotients for single and multiple authorship leads to a college-to-graduate-school ratio of 1:3 for individual, and 1:5.8 for joint, authorship. This last ratio seems to emphasize the scientific superiority of the graduate school.

A close scrutiny of the data, however, indicates the need for some corrections. It is obvious that the quotient of 2.3 joint papers per teacher-decade at the graduate school is an expression of the availability of graduate students for research. Their absence in the undergraduate college is not only a serious handicap in the continuation and expansion of research programs but may also be a deterrent at their inception. It is, then, no evidence of deficiency in the college work if the production of joint papers is little more than one-sixth of that of the graduate school, but rather to the credit of the college that it is that high. A scarcity of such joint publications would not be surprising. As co-workers are rarely found in the student body, most co-authors in college are faculty members of the same or neighboring colleges, or industrial chemists. It does credit to the small college that it has solved the problem of the co-worker in a manner distinct from that of the graduate school.

Also, the ratio of 1:3 for individual authorship in undergraduate college and graduate school does not favor the latter as much as might be expected. Many of the graduate-school teachers published 25 or more papers in this decade; thus a general average of only 3.2 papers per teacher-decade indicates that many teachers in graduate school have published little or nothing. Their dedication to full-time teaching has freed the research professor from much classroom work and enabled him to increase his scientific output. Such a balancing of efforts is scarcely possible in a college faculty with an average of only 3.3 teachers.

The scientific productivity of the strictly undergraduate college is certainly not satisfactory, but it appears to be better than expected. A sound basis for further development of college research does exist.

IT MAY be questioned whether the 46 Pennsylvania colleges and universities studied are a representative enough sample of chemical education in the United States to make the findings given here applicable to the nation as a whole. Knapp and Goodrich have shown that geographic

location is an important factor in the efficiency of science teaching at the college level, the Middle and Far West being superior to the rest of the United States between 1924 and 1934 and the Northeast gaining the lead in the postwar period.[3] A similar situation may also exist with respect to scientific investigation. But Sampey's statistics, in spite of other deficiencies, cover the whole of the United States and lead to a similar conclusion regarding the low scientific activity of the strictly undergraduate college in the entire nation.[4] Mattill summarizes the results of his inquiry into the chemical-research potential at American institutions of higher learning as follows:

> Three quarters of the college and university research are at 104 major universities in the hands of just over half of the nation's total of qualified chemistry teachers . . . The chances appear to be 9 in 10 that a qualified chemist in a large university will have research opportunities as a part of his academic work. At a smaller institution, a similarily qualified teacher has only an even chance of getting research under way.[5]

In the light of this statement, it seems justifiable to conclude that the trends observed at the Pennsylvania universities and colleges parallel the national trends.

It may be pertinent to note here that research activity and efficiency of science teaching are in no way related. The three Pennsylvania colleges mentioned by Knapp and Goodrich among the 50 schools which are distinguished by the highest educational achievement in science belong to the group of strictly undergraduate institutions and have publication averages of 1.0, 2.2, and 0.3 papers per teacher-decade. Lewis reported similar findings. He based his estimate of the educational achievement of the colleges on the number of Ph.D. degrees in chemistry obtained by their graduates, and mentioned four Pennsylvania colleges among the top 22 schools. Their publication averages, which are 2.2, 0, 0, and 1.0 papers per teacher-decade, again show no relation between research activity and teaching efficiency, if the latter can be measured by the production of Ph.D.'s.[6] The average of the publications per teacher-decade at the eight Pennsylvania colleges which trained one to three members of the National Academy of Sciences varies from zero for the college training three of them to 1.3; and the average of the three schools which taught American Chemical Society leaders, from 1.0 to 1.3.[7] Again, no relation between teaching efficiency and scientific activity is apparent.

The prestige of a professor will, nevertheless, depend in a large measure on his research. The impor-

[3] *See* Knapp, Robert H., and Goodrich, Hubert B., "The Origins of American Scientists," *Science*, CXIII (May 11, 1951), pp. 543–45; *and* Knapp, Robert H., and Greenbaum, Joseph J., *The Younger American Scholar: His Collegiate Origins* (Chicago: University of Chicago Press, 1953), pp. 39–41.

[4] Sampey, John R. "Chemical Research in Liberal-Arts Colleges," JOURNAL OF HIGHER EDUCATION, XX (April, 1949), pp. 208–10.

[5] Mattill, John I. "College and University Research in Chemistry," *Journal of Chemical Education*, XXIX (November, 1952), p. 557.

[6] Lewis, Harry F. "The Role of the Liberal Arts College in the Professional Training of Chemists," *Journal of Chemical Education*, XXVIII (February, 1951,) pp. 104–107.

[7] *See* Sampey, John R. "Liberal Arts Colleges and the National Academy of Sciences," *Science*, CXVI (September 19, 1952), p. 309; *and* Sampey, John R., and Sampey, Jane, "A.C.S. Leaders Trained in Liberal Arts Colleges," *Journal of Chemical Education*, XXX (May, 1953), p. 256.

tance of university research for the advancement of fundamental science has been stressed repeatedly. A stronger participation of the college professor in such investigations appears desirable. The question is how the research activity of the college can be increased. Each school will have to find its own answer.

TWO principal groups of faculty researchers exist: those who work independently and those who collaborate. The authors of joint papers have sought to collaborate with research workers from faculties other than their own for one or more of the following reasons: lack of equipment, want of funds, or inexperience in conducting research. Guidance for the inexperienced investigator has been provided by visiting professors, the chemists with whom the college professor studied at the university, the co-operative research plan sponsored by a group of members of the Division of Chemical Education, and industrial chemists. Each mechanism seems to work well and to be capable of expansion. Co-operation with industry or a big university has also led to the solution of problems of supplying equipment or materials either by direct grants or recommendation to one of the research foundations. The development of this group of college research workers is, as Lewis has shown, mainly a question of mutual good will in the effort to reach a common understanding of the problems under study.[8]

The question of the independent research worker is a bit more complicated. His need of co-workers can perhaps be satisfied if he becomes director of a research plan in a co-operative program, but the opportunities there are limited to undergraduate students and their teachers, most of whom have relatively little time at their disposal for such co-operation. Full-time graduate help and substantial subventions for the purchase of material or equipment are hard to get, because even those foundations which cater to the small college are not eager to back independent research at these institutions, preferring to support projects farmed out or sponsored by the bigger colleges and universities. A recent letter to the editor of *Chemical and Engineering News* is an eloquent illustration of this point.[9]

The ratio of 3:4 for individual papers and joint publications in strictly undergraduate schools and the record of several teachers who authored 3 or 4 papers independently indicate, however, that independent research workers are nearly as numerous and successful as collaborators, and that adequate support of their work might improve the scientific production of these schools considerably. The granting of research scholarships for graduate co-workers at such colleges is recommended. Scholarships for research assistants of independent research workers at small colleges will, however, require a different organization from those given at bigger and better-known schools. These candidates for the M.S. or Ph.D. degree usually receive free tuition and a monthly payment of about $150 for

[*Continued on page 286*]

[8]Lewis, Harry F. "Activation of the College Research Potential," *Journal of Chemical Education*, XXX (September, 1953), pp. 470–74.

[9]XXXI (May 18, 1953), p. 2052.

The Essentials of Professional Education

A Journal Symposium

From the Obvious to the Significant

By SEWARD HILTNER

Are our professional schools producing *professional* men and women? Are they sending out people who, along with skills and other attainments, know how to go "beyond the obvious to the significant in the interpretation of evidence?"[1] This quotation from a lawyer who is provost of an engineering school, Elliott Dunlap Smith of Carnegie Institute of Technology, seems nicely calculated as a text for a theologian.

I was not initially interested in professional education in general, but in theological education. The more I worked on the principles and methods which could make theological education positively professional, however, the more I found myself driven to consider the problems of any kind of education for a profession. All this has given me a thesis: that all sorts and conditions of professional schools can become more effective by consideration of what it means to go "beyond the obvious to the significant." This article attempts to be an introduction to such an effort.[2]

All our professional schools fail in some degree to go "beyond the obvious." This does not mean that they follow what was obvious to a previous generation. Just as law schools do not simply give abstract lectures on principles of law or medical schools engage solely in general discussions of physiology, so theological schools no longer assume that men can be taught to preach through lectures on preaching. Law schools proceed principally through the case method; medical schools, through clinical observation; and theological schools include supervised and criticized experience in their curriculum. But in doing away with an old and plainly outworn "obvious," we have fallen into a new "obvious," which is no less binding because of the sweat and toil we have expended to produce it. It is this new and more sophisticated "obvious" which prevents professional education from producing genuinely professional men and women.

What is the new "obvious" which impedes professional education from moving toward the "significant"? It is the unconscious conjunction of specialist and craftsman goals in professional education, without the integrating point of view which is needed to put both specialized knowledge and necessary craftsmanship into proper context. I shall try to suggest what this means, and why it describes much of the present situation.

Although education for law and for the ministry grew in part out of the liberal-arts tradition, most professional

[1] "The Place of the Teacher in Professional Education," *Teachers College Record*, LIII (January, 1952), p. 227.

[2] At this point, and throughout the article, I am much indebted to the symposium volume, *Education for Professional Responsibility*, edited by Elliott Dunlap Smith (Pittsburgh, Pennsylvania: Carnegie Press, 1947).

education developed out of training for craftsmanship. A craft, which had proceeded by trial-and-error methods, and the application of traditional practices which evolved out of such trial and error, moved toward becoming professional when it began to study basic principles and not merely modes of practice. In this way it became able to go beyond the routine, and had enough security to be creative. Thus, medicine was a craft until it developed an anatomy, a physiology, and so on, upon which its practice could rest. That is, the emergence of the ability to practice professionally depended upon the development of a science—if a science is understood to mean a body of tested and organized knowledge of basic principles concerning some field of investigation. No two specific situations confronting a professional man are ever entirely the same. Creative handling of novelty, therefore, is of the essence of professional practice. And this can become real only when a body of basic principles is available upon which one can draw in understanding the novelties of each situation.

How, in fact, is any basic body of principles developed? In one form or another (depending on the kind of material one deals with), the answer is: through research, through specialism. Since the best practitioners of medicine were learning their basic medical principles in the laboratory and the clinic, medical students could best learn principles in the same way. If the best lawyers learned legal principles through case analysis, then this is what legal students ought to study. And so on, with other professions. The general idea was: get the student acquainted (through use on professional problems) with the basic material from which principles are derived. So each student is schooled in the science upon which his professional work is supposed to rest. He is no longer a hit-or-miss craftsman, but someone who has a grasp of basic knowledge.

This development was and is a great advance. But it had a catch to it. Immersion in the specialism out of which principles were derived tended either to fragment the student's understanding of the principles or to give him a too narrow interpretation of them. As to fragmentation, think of the medical student who masters principles of physiology and anatomy, but who may be thrown for a loss when he confronts psychiatry—provided his learning of physiology has not prepared him for psychiatry, or his learning of psychiatry has made no contact with physiology. He may be unable to see any reason why physiology and psychiatry are related in terms of principles. The second danger, a too narrow interpretation of principles, is perhaps even more common. The medical student, for example, may become so wedded to what he learned in physiology that, when he comes to psychiatry, he rejects inwardly everything about it that cannot be traced to physiology. What has been said of medicine has equivalents in all professions.

To recapitulate, this is what has happened. Training in craftsmanship becomes professional education when students learn a body of basic principles and not just a set of techniques. So that they may go on learning from their professional experience, they study not only the body of knowledge which each relevant science has built up but also the research methods which that science uses to correct and advance its own knowledge. They thus learn the values of a scientific or specialist approach to the basic knowledge upon which they draw in their practice. Yet this often results in only a fragmented conception of basic principles or a narrow understanding of what principles are relevant. As a result, they may develop a specialist ideal or revert to a kind of higher craft notion of their function,

while not learning how to meet in all aspects the actual situations of their practice with the creative novelty which is implied in "professional." A physician, for example, may engage in clinical practice—while all the time his heart is emotionally back in the laboratory where controlled work was possible and the distracting human element did not have to be considered. Or he may do a clinical job, using the basic principles he learned in school but failing to make those shifts in perspective which his own continuing experience ought to suggest; for example, not merely recognizing that some ills arise from personality difficulties, but also learning psychotherapeutic methods for dealing with them.[3] In neither case does such a man have a wholly professional point of view.

We are now ready to examine the paradoxical situation in which the craft goal and the specialist goal, while letting each other distinctly alone, together exert a common pressure to thwart the professional goal. The original craftsman loved his tools and his medium. Within the limitations of his rudimentary understanding of principles, he worked wonders, especially because he was often artist as well as artisan. When he turned to the systematic examination of basic principles (through the specialist method), he became much more versatile and took the first long step toward becoming professional. Yet the more he followed the specialist method of organizing knowledge (and of pursuing new knowledge), the more he tended to become attached to principles already discovered and to established methods of pursuing specialist goals. In the craft stage, he was attached to conventional methods of practice. In the specialist stage, he is attached to procedures for discovery. In both instances, he is attached to a way of proceeding that gives him security, but in the use of which he attains security by ignoring those aspects of the situation which are not in accord with his attachment. Thus there is a *de facto* common opposition to a professional attitude, in spite of the fact that craftsmanship and specialism are separated from each other.

The old country doctor who gave a fatherly word of advice, or recommended a sea voyage, recognized the effect of psychic factors in illness, even if he had no scientific knowledge of the connection. In such matters, he operated as a craftsman. But suppose a modern physician, whose science has taught him how anxiety may help to produce an ulcer, and who uses scientific procedures for discovering that there is anxiety in his ulcer patient, then reports to the patient that his trouble is not "medical" or is only "functional." In that case, he is using "science" for diagnostic purposes; but he is attached to those diagnostic procedures (at the price of therapy) just as the old country doctor was attached to his conventional practices. The conjunction may be unconscious to them, but it is visible to us.

In a recent conversation with a brilliant young teacher of law, I inquired about the current status of the case method of instruction. He replied that the older form of the case method, using only cases which had already been decided, often tended to become stereotyped, and that more use is now being made of cases or case-problems which have not actually been decided. In either event, he indicated, the vitality of learning is proportional to the growing ability of a student to discover the basic principles of law involved in concrete cases. A presentation of the general principles to students by a teacher would not teach the students how to learn legal principles. One could not help assenting to the wisdom of this, so far as it goes.

[3] See *Psychiatry and Medical Education* (New York: American Psychiatric Association, 1952), report of a conference which I had the privilege of attending as a consultant from another profession.

But when is a principle a legal principle, and when does it become peripheral to law? When is a principle medical, and when is it "outside my field"? The answer lies in large part in what cases (or concrete material of any kind) are selected out of which the student is to learn basic principles. If the law cases are selected so that matters of negotiation and communication are never thrown into the foreground, then the student gets the idea that the principles behind communication and negotiation are only peripheral to basic legal principles. He may learn much about the sciences of law, in a specialist sense. And he may develop a capacity for legal craftsmanship. But he may fail to ask what Elliott Dunlap Smith calls "the truly professional question, 'What—all things, not just legal things, considered—should be done?' "[4] Specialism and craftsmanship may unconsciously combine against the goals of genuinely professional education.

We find a similar situation in education for my own profession, the ministry. There are still some "trade schools" for the ministry which do not consider it a learned profession, and which believe the sole relevant principles are those which can be acquired merely by reading the Bible. But the vast majority of theological seminaries, and certainly of all university-connected theological schools, are based on the assumption that the ministry must be learned. Theological education cannot be, therefore, mere training in craftsmanship. It must get at basic theological principles, and move toward a "science" of theology through specialist study of the several realms of religious inquiry. We then confront the twin dangers noted before, fragmentation and narrowness.

In his study of the Bible, for example, the theologue may work on all the things which give insight into the Bible's meaning: Oriental history, the special languages, archaeology, and the like. He may learn great respect for the "scientific" approach of the Biblical specialist, and may even sop up a bit of the methodology himself. But he may then come to the study of religious doctrine, or religious ethics, and fail to make any connection in terms of basic principles between these and his Biblical studies. And even if he does make such connections, he may approach a so-called "practical" matter like preaching and see no basic connection between what he learned of Bible, doctrine, or ethics and what preaching to ordinary people requires. Or he may misinterpret the nature of the connection so that his preaching is over the heads of his people. The teachers of Bible, of doctrine, or of ethics, may be all too well content to keep their mouths shut tight about preaching; as the teacher of preaching may profess that he trains the men in how to communicate but not in what. This apparent respect for one another masks an attitude which wars against the student's becoming professional in his outlook. For it looks as though he must hold knowledge and practice in logic-tight compartments, or decide for one as against the other. If he does the former, he becomes shallow. When he falls into the latter course, he becomes narrow—whether the narrowness shows itself in his becoming an "unpractical scholar" or "only a practical preacher."[5]

Apparently (although my knowledge of the several professions is, of course, limited), this same unconscious conjunction between specialist and craft goals exists today in the education of all professions. It takes different forms, and is at different stages, in different groups. But it exists in some form and degree in them all. The best of engineering education is certainly much more

[4] Smith, *op. cit.*, p. 228.

[5] *See* the two reports of the Association of Seminary Professors in the Practical Fields (Evangelical Theological Seminary, Naperville, Illinois) for further discussion of these problems in theological education.

than craft or trade training. But once it passes this point, it is quite likely to rest upon specialist goals as means to the eventual goals of engineering operations. And even when it moves toward genuinely professional education, it may yet instill in the mind of the student a too narrow view of what are "engineering principles." One engineering educator rightly indicates that a primary goal of such education "is to provide not fullness of knowledge, but fullness of mastery of that root knowledge and skill which will be useful in later learning."[6] This is absolutely correct—provided the conception of the nature of that "root knowledge and skill" is sufficiently comprehensive and far-reaching.

Educators in every one of the professions are attempting today to wrestle with their problem, and one can only commend the ferment of reflective consideration, much of which is too far on the frontiers to find its way into print. But what is regarded by each group as its basic question is put in different ways, and usually without understanding of the way in which that problem is shared by other professions.

Thus, engineering education seems to put its problem in this way: How can we train men to be good technically, good enough to handle new types of problems because of their acquaintance with basic knowledge, but so that they are "whole men," liberally educated men, and not merely high-class technicians? Alert medical educators are likely to see their problem in this way: How can we continue to give the student familiarity with the basic principles of all the medical sciences, and clinical ability to deal with illness in practice, and yet help him to be alert to the "patient as a person" and not merely as a disease entity?

Social work, a newer profession, has well-developed clinical or practice elements in its education. For the most part, it is still on the road toward the full use of "science," or specialist-acquired knowledge, in its schools. Schools of business have moved rapidly in the past few decades from being mere trade schools to being schools of administration. In some respects they, too, seem to confront the dangers of the unconscious conjunction between craft and specialist goals. But the insight held by some of them, that real and basic knowledge is to be found by a serious exploration beginning at the point of practice, may save them many future headaches.

A good deal of thought in legal education seems to put its problem in this way: We have discovered pretty good methods of teaching law students how to learn about principles of law, but how can we teach them to use their knowledge ethically and for the common weal? The one thing I am sure of about the lawyers is that they will never answer this question so long as the "ethics" are put on as an addendum.

In theological education, our question has usually been put in this way: We have learned pretty well how to teach Bible, doctrine, ethics, and the other "content" (that is, specialist) materials; but how can we teach the men to use these properly in practice? The one thing I am sure of about theological education is that it will never answer this question so long as "practice" is considered as an addendum. One theological school after another has reorganized its curriculum, often helpfully, only to come up against the hard rock of how to handle the "practical field." The fact is that a categorical separation of a "practical field" from the rest of the course makes an effective (that is, professional) answer impossible.

The way in which each profession states its own problem is of course relevant. But beneath each one is, I believe, the deeper question common to all: What can we do to transcend or

[6] Smith, Elliott Dunlap. "The Essence of Good Teaching." Unpublished address.

move beyond the unconscious conjunction between the (apparently divorced) specialist goals and the craft necessities toward responsible professional education?

Occasionally a school attempts to cut the Gordian knot by aligning itself wholly with the specialist or with the craft goals. In the latter instance, it becomes a trade school. In the former, it becomes an anomaly; for example, a theological school whose graduates make no pretense of being ready for or interested in the ministry. Some years ago two well-known and important schools of theology nearly fell into such a situation. The curious result (now happily altered) was that they minimized considerations of practice and specialized in preparing teachers of religion—but neglected to tell these would-be teachers of religion that teaching was just as much a professional enterprise, and related to practice, as the parish ministry. There can, in fact, be no answer to the dual influence of specialist and craft by omitting either element. Both have a legitimate and important place in professional education. But singly or together, they cannot make education truly professional unless they are placed in a context which relates them openly.

In summary up to this point, I have attempted to show that science and the specialism which results from it were essential to the development of a professional attitude, but that a preoccupation with specialist goals has tended to combine with craft goals in a joint though unconscious resistance against truly professional goals. We cannot possibly do without the science, and some form of practice is inevitable. But attention to the science may find security only in following approved procedures, just as attention to the craft may find security in attachment to conventional practices. The larger context in which professional practice is carried out—the creativeness necessary for searching out the novelty in each situation—may be ignored as the result of such attachments.

All professional education has in various degrees had this problem thrust upon it. If students keep specialism and craftsmanship apart, they become fragmented or shallow. If they cleave to one and despise the other, they become narrow—either rule-of-thumb practitioners or detached from the people they would serve. Although each profession sees its educational problem a bit differently, this is what all have in common—getting the science and the craft together for the education of a profession, rather than to obstruct through dual resistance a true profession's coming into being.

Positive definitions of what is "professional" vary with what the definer is implying in contrast. For instance, Lewis White Beck writes:

> A profession . . . is different because of the demands it puts upon adaptability to new and unique problems and situations. Professional education, therefore, must be education in principles which have wide range of application. Professional education is supposed to produce insight; vocational training is content to produce repetitive knacks and automatic skills.[7]

He adds that "exploration, research, discovery, or rediscovery" are inherent in professional education.

I would agree with this conception of professional in so far as profession is in contrast to trade or craft, or professional education is contrasted with vocational training. But it is not an adequate definition of "professional." There seem to be five characteristics requiring explicit statement about the professional.

First, the professional man operates from basic principles, just as Beck indicates. This is what a "learned profession" means. So understood, any true profession must be "learned."

Second, the professional man operates through technical means, but in mastery

[7] "The Strife of the Faculties," *Key Reporter*, XVII, No. 4, p. 2.

of them, not in subordination to them—using them to free rather than to fetter thinking and action. It is the technical means which separates the professional man from the man with only a liberal or a general education.

Third, he operates in some direct way for human welfare. In wanting a house which will not fall to pieces, in which people can live as they wish, and which they can afford, the architect, for example, is concerned with human welfare. For a professional man, the human-welfare considerations are an explicit part of the principles upon which he relies.

Fourth, the professional man operates responsibly; that is, he has a discriminating view of what his own principles may be applicable to, and of where the knowledge and skills of others are more relevant. Part of his professional ethics concerns responsibility in this sense. He does not pass on a task to someone else because it is difficult, but because someone else is better equipped.

Finally, the professional man operates in some way as representative of a group which, collectively, is a "profession." Part of his ethics has to do with the way in which what he does and how he does it affects the whole group of which he is representative. In his dealings with clients, patients, parishioners, or students, what he does always transcends himself. He is the focus, here and now, not only of a body of knowledge and skill but of a great host of concerned and learned men down through the ages of civilization.

How, educationally speaking, do we help men and women to develop these capacities necessary for a professional outlook in the true sense? Bearing especially in mind the unconscious conjunction between the specialist and the craft aspects of professional education, we may consider in turn the five requisites of professional education.

The first requirement is learning how to operate on the basis of fundamental principles. This means having sufficiently deep root-knowledge or fundamental knowledge that one can "learn how to learn" from his actual professional experience. As an illustration, suppose that I, as a teacher of theology, am dealing with funerals and bereavement with my students. If I were a craftsman only, I would be likely to give them rules and rituals (not basic principles) for conducting a funeral service and calling on the bereaved. If I were a scientific specialist only, I might be occupied with a number of things; for example, how the funeral service developed, the inward psychological processes in bereavement, and so on. What I actually do, instead, is to have the group analyze one or more actual situations involving funerals and bereavement in which one or more members have been naturally involved. If not all the members have been in such situations, then I have them analyze other, though lesser, situations involving loss in which they have been concerned. By sweating it out on paper and in group discussion, they arrive at a point of view which has integrated the scientific background knowledge with the necessities of professional practice, and which, above all, has taught them that the next situation they confront is an opportunity for learning as well as for applying. This means that they have become vitally aware of certain basic principles in the light of which the next situation may be examined. Thus they have learned how to go on learning from their actual professional experience.

Since the meaning of learning how to learn is so fundamental, I shall use a second illustration at a simpler level. Elliott Dunlap Smith describes two groups of third-grade children who are learning how to identify different kinds of trees.[8] As he notes, the educational goal and principle here are the same as those involved in professional education in terms of learning how to learn by

[8] *Op. cit.*, *Teachers College Record*, pp. 223–24.

gaining capacity to utilize basic principles in relation to concrete material. In the first group of children, the youngsters were given several leaves of different kinds, were told the names of the leaves, and were asked to draw and color each type of leaf. In the second group, the children were given an unsorted collection of leaves of different kinds, and were then asked to divide the leaves into two groups such that a leaf from one group could not be put into the other group. This proved a difficult task for the children, but they persevered until they mastered it by discovering there was a root principle which did separate the two basic types of leaves. Then they were asked to subdivide each of the two piles they now had. Again there was difficulty; but eventually the principle was discovered by the children themselves.

Both groups of children learned the names and principal types of leaves from their study. But the first group learned unconsciously that, when confronted with a new situation, the thing to do is to find out the truth from an authority who knows, then to apply what one has been told until one can remember it. The second group learned how to proceed to learn on their own, through the discovery of root principles in the actual situation. There is a good deal of evidence to suggest that the second method is superior even from the point of view of the immediate task, such as learning the names of leaves so that they will be remembered. At the beginning, the second method is likely to require more time than the first; but later on, the opposite may be true, because the capacity to learn adapts itself more readily to new types of situations.

If children and young people, throughout their early education, had been taught by the second method (properly adapted to each type of subject-matter), by the time they reached professional school there would be little difficulty with educational method. But every teacher who has taken this approach seriously at the professional-school level knows that, initially, many students resist it. In all kinds of ways, they press him for the "right answer," regardless of the methods by which a right answer may be discovered. If we returned to the first group of children who learned about leaves by being informed verbally of the correct names, and so on, we can see how they achieved what the Gestalt psychologists call a "closure" around the right answer. If we assume that all their subsequent educational experience is of the same type, then we can see that they would naturally expect, when they reach graduate school, to be informed of the right answers. When the right answers are known, they believe they have learned. They feel some security because a question has given way to an answer. Something is finished, rounded off.

But they have not learned how to learn from their experience. Indeed, if they are to learn this, they must alter or "unlearn" certain mind-sets about what learning means. The security they feel when they learn in the old way (rounding off a right answer by an authority) must, so to speak, be broken up before they can experience the new and more profound security which comes from learning how to investigate some area of experience and learn for oneself. In the interim, if students have been brought up by the other approach, they will fight to the teeth, and use all kinds of strategems (including flattery), to have the teacher's right answer substituted for the process of personal exploration. Here is where the teacher is most sorely tested. If he gives the right answer and dismisses the subject, he has deprived the students of the experience of learning how to learn. But if he merely withholds his answer (right or wrong), the students will concentrate on him rather than on the material, with no resultant learning how to learn.

It becomes essential, therefore, that

the teacher guide the student through the process of learning how to learn, and that he make explicit at every point what the aim of this is. It is not professorial detachment. I have found that if the aim is defined at every step, the resistance of students drops very rapidly; and, after a few successful experiences of such learning, their capacity and enthusiasm for tackling new situations markedly increase. For these students have lost some of their old attachment to a certain method of learning (ask the one who knows); and in the process of learning how to learn from their own experience (checked with authorities, to be sure) they have discovered themselves in possession of more basic principles than before. These principles, then, become capital which may be applied to other new situations with assurance that some interest will be forthcoming. The philosophical way to say this is that one is constantly searching for principles which are permanent and useful because general or embracing; and that, because one has some such principles, he is able to accept and recognize the novelty in each situation he confronts.

I have dwelt at such length on the meaning of operating from basic principles because, without this, the other four requirements of the professional would have little meaning. Learning how to learn from professional experience is the keystone of professional education. We may note explicitly that this requirement does not minimize either specialist knowledge or craftsmanship. But when specialist knowledge is used, it is used in such a way that thinking toward general principles is always fostered. And when craftsmanship is stressed, it is also in such a way that the specific practice may be altered if called for by the new situation. The relationship between concrete material or situations and the basic principles is explicitly considered at every point. No truly professional curriculum can sustain wholly theoretical (or scientific or specialist) courses on the one side and wholly practical (or craft or practice) courses on the other. Whether one begins from an organized aspect of knowledge or from a type of operation, one moves through specialized knowledge toward general principle—in both cases from the obvious to the significant. Both the specialism which uses its specialty as a wall against the claims of discovering general principles within it and the craftsmanship which uses its techniques for a similar end are afraid of basic principles. But the specialist who moves toward basic principle and the craftsman who seeks the principle behind the operation are both being professional. We do not need a new body of teachers set apart from their fellows to do "professional" teaching.

The second requirement of the professional is operating through technical means. To operate through technical means is probably the one point where few of the established professions are in danger. For the technical means are on such a high pedestal that few there be who find them not. On second thought, however, this too is not so obvious as it appears. Technical means which undergo no improvement tend to reduce a professional man to a craftsman; and it is out of research, and deeper exploration of basic principles in relationship, that technical means are improved. How much research is going on, how relevant is it, and how many practitioners are able to engage in those aspects of it relevant to their activities? The answer is discouragingly negative for nearly all professions. The universities have a very difficult time getting funds for anything but the most obviously useful applied research; and for anything but the physical and medical sciences, the going is tough indeed. Educationally speaking, the problem is to show the student constantly the deficiency of the present technical means at his command, and help him to learn how, in the regular

course of his activities, he may himself contribute to the enlargement of this technical knowledge. It is also, plainly, to foster more research activity in university centers.

We may note, moreover, that the professional man's personal command of technical means is likely to be directly dependent upon the extent to which he operates from basic principles (our first requirement). If he has learned his techniques with little comprehension of their larger significance, he is likely to become attached to them in such a way that they remain obvious but never become significant. In that event, his attachment to technical means (which is, at bottom, an attitude) becomes such that he really does not see the other factors involved in the total professional situation.

To operate directly for human welfare, the third requirement, is not quite so obvious as it sounds. The physician will work with people, but will he work with them as whole persons? The lawyer will have human clients, but will he deal with them as total human beings, or only as suers and plaintiffs and defendants, with personality attached? The engineer has his tasks assigned by someone, but is the bridge built for man or man for the bridge? The minister works with a congregation of people; but are they just souls with (unfortunately) body and emotions attached, or whole persons who can be religious only to the extent that they are whole? Each profession has its temptations to substitute its focal interest in persons for the persons themselves, and thus to ignore the larger issues of human welfare always contained in any professional encounter. Again, our educational answer lies largely in the selection of the concrete material with which our students are confronted. Is it varied and broad enough to show the larger aspects of the context of our work, or does it strain so hard toward a narrow focus that all larger considerations are considered mere periphery?

To operate responsibly, the fourth requirement, is largely a question of responsibility to whom. A minister, for instance, has no difficulty acting responsibly toward his congregation or his bishop; the latter will see to that. But does his sense of responsibility extend beyond his local church to the national, beyond his denomination to all the churches of Christ, beyond Christians to others, and so on? And is it focused in his operations so that he helps this person, whom he can help, and refers that one, whose need can better be handled by another? If he is to learn such a sense of responsibility, and as something coming from within him and not as an imposition, there must be in the concrete experience of his study actual situations which help him to feel that any lesser width of responsibility is an enemy to his professional responsibility itself. The educational clue here is selection of concrete material and relevant explicit discovery of its implications.

The fifth requirement, to operate as a group representative, as heir to a long line of tradition and dedication, is also not so obvious as it sounds. Here also the question is: What group? For the minister, Is it local church, Presbyterianism, John Knox, and a bow to St. Paul? Or is it much more? For the doctor, Is it the local medical society, the American Medical Association, and specialist journals? Or is it much more? Professional ethics, in their most basic sense, always rest on these assumptions: that the best good of the professional man comes out of the most responsible representation of the professional group, and this in turn comes from best serving the public. A true though unstated corollary is that any temporary disadvantage to the individual practicing such representation is more than outweighed by the eventual advantages not only to the public and the profession but to himself as well. Educationally speaking, this kind of consideration

cannot be "tagged on" in a special course if politely ignored in all the rest of the curriculum. These representative considerations are involved in any bit of concrete material which may be examined, provided they are not arbitrarily excluded.

Although each profession sees its current educational problem in somewhat different terms, I have attempted to demonstrate that there is a basic factor common to all, to suggest what that is, and to propose those educational principles and methods which can move in the direction of solving the problem.

The problem itself arises from the fact that professional practice must eventually involve some craftsmanship, but that the educational road to a profession must include "science" or specialized knowledge. It has been my contention that the specialists and the craftsmen have had what I have called an "unconscious conjunction" in such a way that both have tended to impede the aims and methods of a genuinely professional education. The craftsman has been attached to conventional modes of practice. The specialist has been attached to certain methods of discovery. Both have resisted movement toward more general or inclusive principles, so that the net effect has been an alliance, unintended but powerful.

I have not contended for a moment that there should be no specialism or no craftsmanship in professional education. What I have asserted is that the type of relationship which exists between these two aspects needs change. Both specialism and craftsmanship (organized knowledge and operations) are necessary starting points within a professional curriculum. But if knowledge moves only to knowledge and not beyond itself to general principles, then it remains within the arena of specialism and unavailable to professional problems. If operations are examined only as operations or practices and not beyond themselves to general principles, then they remain within the realm of conventional and uncreative practice and are incapable of alteration in the face of novelty. But both specialism and craftsmanship can move toward more inclusive and basic principles, in the development of a field and in the mind and capacity and experience of the student. When they do, genuinely professional education is taking place.

My thesis will certainly not solve all the problems of professional education, nor can its application be considered simple or easy. But unless professional education is to be mired permanently in a kind of gentleman's agreement between the specialists and the craftsmen, at the expense of a genuinely professional orientation, some kind of new thinking must be done. Whether my thesis is accepted or not, I am convinced that no new "obvious" will do unless we are to give up our search for the "significant."

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"The Significant" and Legal Education

By W. WILLARD WIRTZ

Trying to isolate "the significant" from "the obvious" in professional education is risky, perhaps even dubious, business. These are tempting phrases if there is inclination to dabble in the alchemy of producing golden ideas from the common metal of undefined words. More basically, there is something forbidding about the very idea of trying to fix a single ultimate dichotomy between pedagogical good and evil. Education, like democracy and civilization and even life itself, seems somehow vitally dependent upon denial that "the significant" in it can ever be definitively or reliably determined—by either teachers or legislative investigating committees.

The actual thesis of Hiltner's essay is as modest, however, as its title is pretentious. His picture of "the obvious"

in professional education is somewhat involved, but "the significant" emerges clearly enough as a label for the teaching of students "to learn how to learn from professional experience." The specific constructive proposition is that this capacity for continued learning will be best developed by training which makes the student work "through specialized knowledge toward general principles."

Although Hiltner develops his case for "inductive" teaching deductively from unarticulated premises, it must be left for someone other than a law teacher to question his basic pedagogical theory. Whatever his premises may be, they parallel almost exactly the assumptions underlying the law schools' widespread use, during the last half-century, of the "case method"—a system of instruction built almost entirely around student reading of actual court "cases" and participation in classes conducted on the theory, if rarely in the pattern, of the Socratic dialogue.

It could be reasonably hoped that this actual experimentation in one field of professional education would offer some basis for testing the validity of Hiltner's theory regarding "the significance" of the inductive teaching method. Unfortunately there is hardly a shred of evidence that the legal profession is today either better or worse off for having been raised on "cases" instead of on abstractions. This reflects not only the difficulties inherent in measuring this kind of thing but also the refusal by law teachers as a group, until very recently, to consider teaching method as subject to analysis. The fact that not one new law teacher in a hundred has had any training in pedagogy has made it convenient to treat teaching ability as an inherited characteristic. It is probably important in any evaluation of the case method of teaching that it appears to be peculiarly one which permits most reasonably intelligent law-school graduates to be reasonably satisfactory classroom teachers.

So no questions were asked, for several decades, as to whether the case method was meeting the demands society places on the legal profession. Its originators were paid the compliment of wholesale imitation. As new courses were added to the curriculum, they were laid out in the same old format, without consideration of essential differences in their subject-matter or of the effect of monotony upon student reactions. Students were required to spend three solid years reading three to five cases a day in three to five different courses.

There has taken place, however, during the past fifteen years and particularly since the war, a kind of pedagogical renaissance in the law schools. One feature of the resultant refurbishing of legal education is that the case method has received, in a good many law courses, extensive alterations. These changes have reflected, in some ways, the point involved in Hiltner's distinction between "specialist" and "truly professional" goals (which is, at least in part, a distinction between competence for narrow and for broad decision-making). They have also reflected, what Hiltner recognizes perhaps too little, the realization that teaching is not one job but a dozen different ones, and that no one teaching method represents such a degree of pedagogical perfection that it does wholly dissimilar educational jobs equally well.

It is "significantly" characteristic of the law-school "casebooks" which have emerged in the past ten years that the traditional judicial opinions are now interspersed with substantial pieces of "secondary" material—law-review treatments of legal points, and excerpts from related writings in such fields as sociology, psychology, and economics. If a law-review writer has said in a paragraph what no judge has said in less than five pages, or if a sociologist has put clearly what a court has only felt vaguely, the tendency now is to accept these more precise materials as valuable starting points for the student's inductive thinking

process. It is recognized that the important thing is to make the learner approach whatever he studies critically and constructively and free of the enervating assumption that something is both correct and basic just because someone has gone to the expense of printing it up.

"Cases"—appellate judicial opinions—have had the advantage of being readily available in a form which has made the casebook editor's task easy, and the teacher's job of confusing the student into constructive activity comparatively simple. But there is increasing realization that such materials are likely to fix "the law" in the student's mind too much as an abstract, detached, rigid system of precedents, and to give him too little consciousness of how the law works and grows as a part of a society's nervous system. This realization is reflected in the addition to the law student's "case" diet of these different kinds of materials which acquaint him with law's roots, increase the hope that he will become something more than a technician, and still permit training his mind in the tough discipline of the inductive method.

There has also been an adding of "problems" to the law-school bill of fare. These problems take the form of detailed factual statements of such client situations as the planning for distribution of an estate or the negotiation of a collective-bargaining agreement. The problems require the working out of answers not supplied by the holdings in the cases which accompany them. They are rawer material than the judicial opinions, present a broader area of professional decision-making responsibility than is usually reflected in an appellate opinion covering a lower court's handling of a point of law, and are being used largely in courses covering areas in which the lawyer is most frequently called upon to contribute something more than just a knowledge of judicial precedents. Most law schools have also added several "practice" courses—in the presentation of oral argument, the drafting of documents, and the negotiation of agreements. The legal course of study, once the inbred product of slavish acceptance of a single pedagogical method, is becoming now a varied pattern of response to the infinite variety of professional needs.

The greatest concern among most law teachers today is about the teaching, if indeed it can be taught, of what is variously referred to as "values," "ethics," or "professional responsibility and leadership." Although Hiltner mentions this as an ingredient in his "significant," he dismisses it almost summarily with the comment that "the educational clue" to training for responsible professional service is "selection of concrete material" which will, here again, prove the best basis for "learning how to learn from subsequent professional experience."

The trouble with this, so far as legal education is concerned, is that what the "concrete materials" will reveal, and what will be learned from subsequent professional experience, is that there is often a premium on sharp legal practice, that opposing change in the status quo is invariably more lucrative than supporting it, that too many businessmen expect their lawyers to pay off the policeman and the alderman, and that engaging in public service usually means monetary sacrifice and more public opprobrium than respect. The point is not that the law is evil or the profession corrupt. The point is partly that society does need today a different kind of professional leadership from what the bar has been supplying. But the point is more that the law schools have been assuming for too long, as Hiltner does in his essay, that values can be taught as knowledge is. This may be true when the principal course of study has to do with inspiring men to love their neighbors. But in a discipline built around training men to help neighbors recover an eye for an eye in court, the case-study of legal ethics has proved a futile bootstrap operation.

Very real efforts are being made

currently to meet the special demands of this problem in legal education. The old case-study courses in legal ethics are being replaced with studies of the meaning and history of law and the legal profession. Recognizing that many students fix their value judgments rather firmly during undergraduate years, a recent law-school committee report has strongly recommended pre-legal "education for critical understanding of human institutions and values." There is at work now, under the auspices of the Association of American Law Schools and the American Bar Association, a Joint Conference on Professional Responsibility. Another group of some 75 teachers and lawyers are attempting to work out a program of discovery of the still wholly unknown approaches to this job of teaching values and ethics and public responsibility to students who are also learning the art of argument by half-truth, the fine difference between tax evasion and tax avoidance, and that the Good Samaritan assumed substantial tort liability when he crossed the road.

No hard line can be drawn between the educational purposes of learning to learn and learning to use that learning responsibly. They are complementary parts of a whole. Yet the service of both purposes together may require very different educational approaches, especially as between different professional disciplines. "The significant" in professional education is probably, after all, only whatever has most been ignored and therefore most needs doing in the educational field one knows best. It is entirely consistent that this emphasis should today be placed by the seminary upon preparation for learning the lessons of life and by the law school upon finding firmer articles of moral principle and social responsibility. What an inspiring experience life would be if reason always stood beside faith in the pulpit and if lawyers practiced the Ten Commandments and the Golden Rule with equal fervor.

Responsibility in Engineering Education

By L. E. GRINTER

Engineering education should represent the highest type of professional preparation for engineering practice, but it cannot do this if it consists largely of a miscellaneous group of courses with individualized objectives ranging from contact with the arts to a study of pure science. Every course taught by a professor of engineering should carry forward the multiple objectives of professional education: that is, to develop and work from basic principles, to learn how to study after graduation, to make use of the engineering or scientific method without permitting it to become restrictive, to consider every engineering operation as it may influence the public welfare, to encourage a willingness to accept responsibility for decision, and to express through individual work the highest ideals of the profession. No course that is either mainly craftsmanship or primarily pure science can do this job for engineers, because art and science are mixed inseparably in every piece of engineering work. Also, neither in the application of art nor in pure science is there the same quality of responsibility that is carried by the professional engineer.

Perhaps wholly, or at least in large part, these characteristics of engineering education, when properly restated, apply to all professional training. However, one other characteristic, which in some degree must be a distinguishing feature of all professions, seems paramount in engineering. The engineer is inherently creative. His work probably demands more creative activity than that of the lawyer, the physician, or the minister, but he is somewhat less dependent upon creativity than artists or research workers in science. The engineer must be sufficiently creative, if he is truly professional, to bring any work undertaken to a successful conclusion. He cannot do

this by the application of craft rules or by using inextensible specialized knowledge of science. He must have at hand basic principles that he understands so well that he can transfer their usefulness across boundaries to analyze new situations and reach a solution through a synthesis of concepts, techniques, and experiences never before put together in the pattern needed. This is indeed great engineering, but anything less is inadequate as an objective for engineering education.

In contrast to law, medicine, and theology, engineering education proceeds from basic laws of science as transformed and applied through mathematical analysis to physical situations. Physical properties of materials, which form important constants in such analyses, are necessarily determined by laboratory experiment; and the properties of complex physical systems can sometimes be determined in the laboratory through model analysis. Engineering was an art until it applied the methods of mathematics, physics, and chemistry and merged these sciences with engineering art in a professional way to provide for the convenience and welfare of the public.

For nearly a hundred years engineering proceeded with startling success to use specialized science superimposed upon, or, rather, superficially integrated with, its basic art. However, since 1930, engineers have steadily been forced to delve more and more deeply into basic science for their significant developments such as radar, jet propulsion, synthetic materials, and atomic power. The narrow interpretation of basic laws as specialized knowledge applicable only to a limited field seems to have passed the peak of its usefulness as the primary method of engineering. New advances are now more likely to be achieved by those whose knowledge of basic laws is so fundamental that boundaries for them cease to exist between civil, electrical, mechanical, and chemical engineering. Attempts to train general engineers based upon a technological rather than a science background have not been highly successful because it is impractical to give any student all of the specialized knowledge from several branches of the profession of engineering. Such individuals without basic scientific principles as their tools of integration can be no more than craftsmen or handbook engineers.

It is also important that specialized science not be confused with engineering. There may be teachers of mechanics, electronics, or metallurgy who serve the engineering profession well without being engineers themselves in the professional sense. It would be unwise to ask such persons to be registered as professional engineers. They teach and advance a branch of science, an applied science it is true, but they are not necessarily teaching engineering. Only when their science is combined with the technological arts and taught in relation to design, thus introducing the creative aspect, does it take on the character of professional engineering. Otherwise, the value of the educational experience is primarily the acquisition of a background of science, with the usefulness of that experience left to future development.

It appears that engineering differs from other professions in another way. It is doubtless possible to ask the question propounded by Elliott D. Smith, "What—all things, not just legal things, considered—should be done?" But it is not proper to substitute "engineering things" for "legal things" in this quotation. The reason this should not be done is that the verb "to engineer" has as its accepted meaning "to bring to a successful conclusion," a definition which necessarily requires that "all things" be taken into consideration. Engineers who neglect economics, law, politics, international relations, or unionism can only perform in restricted fields; those who neglect ethics or the social aspects of their work appear in retrospect as even more limited in their

achievements. All successful engineering must be professional engineering unless it is recognized as craftsmanship or scientific analysis contributing to, but not controlling, an otherwise planned project.

Certain aspects of professional education are seldom neglected in engineering. Economics, once an addendum, has been well integrated into engineering education. Ethics, which is professional honesty, seems to be inherently understood as a natural transfer from the study of physical laws which the engineer must respect. Practice and practicality cannot be divorced from any phase of engineering study. Responsibility comes so early in the practicing engineer's life that teachers seldom neglect to train their students to welcome it. The weakness of engineering education has been neither the neglect of craftsmanship nor of specialized science, but insufficient attention to welding these together so that the student can explain the rules of craftsmanship from his scientific knowledge, and insufficient depth of scientific study to enable him to understand the interrelationships between the half-dozen or more specialized sciences with which he deals.

In engineering education, as in every other type of professional education, the key to professional success is to learn how to learn without a teacher. We can cover only a little of the art of engineering and a few basic principles before the graduate must leave the university. If this represents his entire education, the graduate will remain professionally illiterate for life. However, if he has learned how to study and to learn on his own, he has every opportunity to grow into professional stature. Instead of passing on codified knowledge, the teacher must learn to place the student on his own initiative to a greater extent than is usual during the undergraduate period.

The reason why students are not given greater responsibility for their own education is often that in its early stages the process results in frustration for the teacher as well as for the students. Since students have been studying for at least twelve years under a system that requires only the learning of facts, any change in the form and objectives of the educational process is certain to prove disturbing. For several months the results are likely to appear ineffective and the process inefficient. Examinations based upon a knowledge of facts are easy to prepare and mark. Those that demand capacity to originate a solution to a problem are difficult to plan, full of surprises, and discouraging in the tangible or measurable results returned. Nevertheless, such accomplishment is the true measure of the progress being made toward professional education as contrasted with technical training.

It is possible for every engineering teacher to encourage creative activity in the minds of his students. The teaching of the art of engineering should proceed in an attempt to explain every rule so that it may be modified to meet new situations. Specialized science must be associated with or drawn out of basic scientific principles and related to other specialized science through such principles. And all of this needs to be done largely by the student, rather than the teacher, under the influence of the need to solve problems as novel to the student as each new project is novel to the professional engineer. If technical tools are used and re-used without change, the result is craftsmanship. Only by repeated attempts at refinement of the tools at hand can the student or the engineer develop a professional attitude. In this sense every professional engineer is engaged in continuous research upon his own practice. It is a fallacy to consider that training for research should be restricted to a minute fraction of engineering students.

In summary, the profession of engi-

neering requires the same elements of education as all other professions, but with greater emphasis upon creative aspects. The highest professional education in engineering will weld art or practice with basic science into an approach so sound and fundamental that it will level the walls of narrow professional specialization which have been raised primarily by the pride of craftsmanship. The key to professional education is stimulation of the desire to learn beyond the classroom and beyond the college. This requires more than the mere transfer of knowledge from the teacher to the student. It demands the acceptance of responsibility by the student for much of his own education through willingness to attempt the solution of new problems. Through such experiences and under the guidance of those who have themselves carried responsibility, the student will begin to sense his coming accountability for operating in the framework of society for the general good and in the highest traditions of his professional group. The teacher who stimulates such a sense of professional responsibility in his students is a great teacher, deserving of the applause of his university and of his profession. [Vol. XXV, No. 5]

Professional Education in Pharmacy

By MELVIN W. GREEN

At present the typical curriculum of schools of pharmacy in the United States is four years in length, with the requirement of graduation from high school for admittance. Several schools require one year of pre-professional study in a college of liberal arts, after which the student devotes three years to courses in basic science and professional studies. There is a definite trend toward an increase in the number of years to be required for graduation in pharmacy: 16 schools now have extended programs available on either an optional or a required basis. These programs vary with regard to pre-professional study, some requiring one or two pre-professional years, to be followed by three or four years of professional education. All segments of the profession have gone on record recently as favoring more than four years of collegiate education. In addition to formal education, there is a state requirement of at least one year of internship in a pharmacy. It is this period of internship that provides the "practical" phase.

Rapid changes in the nature of drug therapy and other scientific developments, along with a shifting economic picture, have upset the equilibrium between formal collegiate education and informal learning on the job. For a time, educators who were aware of these changes tried to bridge the gap between theory and practice, with the result that undue emphasis was placed on vocationalism in the academic program. The possible weakness of this approach has led them to re-evaluate the program with a view to separating things best taught in school from those best taught by supervised practice.

From 1946 to 1949, a broad spectrum study known as the Pharmaceutical Survey was conducted under the auspices of the American Council on Education and financed by the American Foundation for Pharmaceutical Education for the express purpose of developing "proposals for the betterment of pharmacy as a profession and as a public service." Pharmaceutical education was the focal point of much of the survey, which resulted in the publication of a general report and several monographs, including *The Pharmaceutical Curriculum*,[1] by Lloyd E. Blauch and George L. Webster.

[1] A report prepared for the Committee on Curriculum, American Association of Colleges of Pharmacy. Washington, D.C.: American Council on Education, 1952.

Study of this monograph, review of proceedings of the several teachers' seminars which have been held during the past five summers, and individual investigation have made pharmaceutical faculties aware of the effect of departmentalization and fragmentation on professional education, and have led to an attempt to correct it in most cases. More frequently and effectively than in the past, discussion of the curriculum, exchange of course syllabuses, and critical evaluation of course content in the supportive courses precede the attempt to correlate subject-matter in the climax courses. Correlation of the professional and scientific courses with the social sciences and humanities is more difficult, for these latter areas appear to be as prone to narrowness and specialization as the "scientific" professions. Nevertheless, spearheaded by George Urdang of the University of Wisconsin and the American Institute for the History of Pharmacy, the historical approach to the profession in its broader aspects is being added to the curriculum, as well as to professional thinking, and should lead to a better appreciation of the rôle of pharmacy in society.

An examination of pharmaceutical education as measured by Mr. Hiltner's criteria would disclose an awareness of the operation of standards he advocates. Pharmacy is a health-science profession which is truly a "learned profession," for the student must be reasonably well grounded in the basic sciences upon which the applied professional subjects rest. He takes nearly as much chemistry as the chemistry major, and considerable biology besides. At least a semester of general economics and a year of mathematics are included in his program. In fact, approximately 40 to 50 per cent of the standard four-year course is made up of basic science, mathematics, and general economics courses.

The pharmacist operates through technical means. At one time his operation was more of a manual one, for the pharmacist often made and tested his own drugs. Today, much of the manual function is performed by the pharmacist in industry. However, the complexity, potency, and efficacy of modern drugs are such that the community pharmacist is emerging as an adviser to sister professions and the laity on drugs. The knowledge required to perform this important function is both broad and detailed.

That the pharmacist operates in some direct way for human welfare is almost self-evident. At the bedside of a sick person two long chains of activities meet—the diagnostic and the curative. The meeting ground is a piece of paper known as a prescription. The patient puts his faith in the physician to make the correct diagnosis of his illness and to select the proper drug for treatment, on the one hand; on the other, he places his trust in the pharmacist to reach out into the vast industrial complex and get the proper drug in the correct amount and dosage. To recognize that pharmacy performs a vital function in society, one has only to realize that, in the case of some drugs, the difference between healing and death is an amount no bigger than the head of a pin.

Professional ethics in pharmacy, as in any profession, is important. Most schools of pharmacy teach professional ethics in a course of professional orientation or professional history. Points of ethics are stressed frequently in the other professional courses. The professional society, the American Pharmaceutical Association, has a code of ethics which has been modernized recently. This code, as well as others which are pertinent, is studied. Nevertheless, techniques for the effective teaching of ethical principles are sorely needed in this field. Many of the most difficult professional problems during periods of social transition and unrest revolve around the question of responsibility. Frequently,

[*Continued on page 286*]

What to Do about Grades

By MAX S. MARSHALL

The Merits of the Blank Sheet of Paper

THIS is in the nature of a swan song, written in the hope that the prolonged study of a subject as often argued as any educational topic, the "grading" of students, has reached an adult level. I began investigating the thesis of non-grading over twenty years ago. Naïvely I thought that my discoveries would find the same acceptance as did my observations of test tubes. Instead, they provoked debate and argument, much of it supported by little analysis or experience. The years have rolled on, however. Not only have some of the reasons for resistance become apparent, but the reasons why resistance is increased by attempts to develop the issue have become fairly clear.

Several of the points for or against grading were presented two years ago in the form of an equilibrated stalemate.[1] The conclusion was that debate served no purpose unless it could be held under the stipulated rules of argument. The present discussion proposes a solution, based on recognition of the motives behind proponents of grading and the arguments behind the rather sizable minority that favors non-grading.

The grading of students is regarded by some teachers as a convenient sort of shorthand. John is an "*A* student." The symbol conveys an idea and "everybody understands it." But do they? Try the response, "All right. What *does* it mean?" The answers will vary greatly:

"It means that the student's work is correct."

"The student is smart."

"He has a good head; he is intelligent."

"He must have worked hard."

"He is disciplined; he conforms."

"He is independent; he thinks for himself."

In fine, an "*A* student" is one who pleases the teachers who, for whatever reason they consider worthy, assign him an *A*. It follows that an "*A* student" sometimes may be so rated because he is diffident, good-looking, diplomatic, subservient, genial, good-natured, pleasant, quiet, extroverted, willing, or even an able cheat, smoothie, politician, or provoker of sympathy because of outside problems or talents. The "*A*" means "I like his work," for reasons quite possibly valid but certainly neither specified nor univalent. There is no reason why the meanings should be univalent if the true import of the symbol is caught.

Some minds of the administrative type argue that grades are systematic and believe that system is mandatory

[1]For the article which this supplements, *see* Marshall, Max S., "To Grade or Not to Grade," JOURNAL OF HIGHER EDUCATION, XXIII (May, 1952), pp. 264–69, 284–85.

in any ordered existence. Make a rule that "70" is passing, combine it with a system of rating in percentages, and the teacher or administrator can then deal easily with students who fail—well, relatively easily. The dean does not have to argue whether or not John is able, didn't work, or had an unfair examination; he can point to the rule and adding machine, shrug, and say he is sorry. Members of this group say that students must seek a precise goal; else they feel frustrated. Such teachers put down "65" with a clear conscience, a conscience that would be disturbed over a decision as to whether John was lazy or inept. They argue that, if his work is worth only "65," it is none of their business (doughty rationalizing, this) whether John is lazy or inept. These arguments are valid as far as they go. They are narrowly inadequate rather than erroneous.

Rather closely allied among those who advocate grading are those who uphold it for purposes of statistics or to have a common language, as they see it, in dealing with others. A student in medicine is to be chosen for internship, a dental student enters from another school, or a graduate student wishes a scholarship. There have to be standards of selection, and often there must be selections from among several applicants. These are problems of translation in one form or another. A student ranked No. 1 by his teachers is presumably the first choice from that school, if you want the teachers' vote. The system of symbols applies equally to all, so that what to make of No. 25 in a class of 70 is a puzzle never mentioned by those who advocate this procedure. Among 67 who are not of the top three, some might have merits worth consideration; and some of us, of course, even dare at times to wonder about the top three.

The reactionary group must also be mentioned among the proponents of grades, not so much because reactionary and progressive groups are always with us as to point out that years of schooling, added to whatever years may have been spent in teaching, foster an unusually strong resistance to change. Neither the true reactionary—"What other way *is* there?"—nor the true progressive—"It is new and therefore better"—provides a reasoned answer; and we must dissociate these from the discussion without forgetting their existence.

TURNING now to the advocates of the descriptive approach as contrasted with grading, definition of viewpoints becomes more difficult, one reason the graders have the easier side in debate. The clear position is likely to win against a position with vague fringes. However, to decide an issue on grounds of strategy is improper.

The descriptive approach is really the ordinary approach. It orginated long before ratings. Teachers who found something wrong said so and did something about it. Students were promoted if they were ready. Students who made errors were informed about them, and lazy ones were warned that they were lazy. This ordinary and seemingly prosaic procedure was not recognized as a system. Then along came the advocates of ratings, presenting a new and shiny system, implying that system was replacing an absence of system.

The origin of grading makes clear

that the advocates of the descriptive approach are not so much advocates as they are voters against grading. Tactically, they have usually failed simply because they have not presented a descriptive system of more obvious merit than the rating system; but herein we are not concerned with strategy but with right, wrong, and realities. There are vigorous opponents of rating systems who add confusion to the question because they are so bothered by ratings, whether or not there is anything to take their place. This attitude in some instances may stimulate thought. Otherwise, it only entrenches graders more firmly, which makes opponents madder, which tightens the graders' fortifications, which makes anti-graders furious, which . . .

The positive contributors to the descriptive approach compose a group which favors direct individual effort with students, with the use of any legitimate words to record what they mean about the student and his performance. They are baffled and annoyed by restrictions to a few symbols with equivocal and never adequate meanings. They are not happy when students are neatly put in pigeonholes; they do not like classes and forced groupings. In general terms, the grader views the descriptionist as a floundering mess, and the descriptionist looks upon the grader as something like the secretary who puts her desk in perfect order by the simple process of stacking everything in two or three piles.

In theory, the procedure for appraisal and records thereof could be reduced in simple terms to the setting of a pointer on a scale. The scale at one end would have a set of symbols, such as *A-F* or 0–100. Its advocates have put some very broad meanings on these, such as "*A* = excellent" and "85 = thoroughly satisfactory," and argue that these terms have universal meaning, as they have, and univalent meaning, which they certainly have not. At the other end of the scale is the unabridged dictionary, containing all the words teachers may use to describe what they see and recommend what they wish. Its advocates may want to write a book on a student, to go into psychoanalysis, to pry into family matters or genealogic background; in short, to be as extreme in breadth as the other end is in narrowness.

Where, now, should the pointer be put? How, on this scale, can we get both the convenience of symbols and the accuracy of description? One group will have a quick answer for that—rather a horrible one. It will suggest descriptive charts, naming all conceivable activities and characteristics and wanting each to be checked in half a dozen degrees. Most of us have encountered these monstrosities in one form or another. Conceding the need for description, they provide what seems to some to be a system for recording all possible terms and shades, as technically they do. But advocates of this method overlook the fact that it forces a teacher to dissect an entire whale to find an obvious wart on its hide which may get lost in the process. For instance, every student is in some degree lazy or industrious. An "*A*" or an "85" is not adequate to label this characteristic. However, in any class of a hundred, hardly half a dozen are in any way noteworthy in terms of industry or laziness. To weigh a hundred on this

basis serves only to disguise the laziness or industry of the half-dozen Meanwhile teachers have spent 94 times a lot of energy wastefully maligning 94 students, who, since they are neither lazy nor industrious, are almost certain to be labeled one side or the other of the truth. A custom-made chart for each student would fit this idea, but the form chart is genuinely vicious in action, no matter how right the motives which lie behind its use.

Recently a manual on the driving of automobiles put 60 per cent of the weight of safe driving on attitude. This idea is valuable for our present problem. An attitude which makes of students a series of units, the equivalents of peas in a canning factory or cattle at the county fair, assuming machine-like infallibility of sorting and as little feeling in students as in peas or cattle, can lead only to full grading with the pointer far to the left. An attitude which makes of students individual buds of latent genius who perhaps should be psychoanalyzed surreptitiously, without consideration of will, discipline, and environment as elements of education, will throw the pointer far to the right, and the descriptive approach becomes all.

Both these attitudes are extreme, but attitudes are like delicate plants in that an attitude must be nurtured and allowed to grow, with legitimate aid but at its natural pace. Students are individual persons, potential adults. They bring to their tasks individual inherited backgrounds which are incompletely flexible, a basic intelligence that can be nudged but not made over, a degree and kind of will which is certainly better used for than against education, and talents which within their limits determine the realm in which a teacher works. No two faces are alike, and no two potentialities. Students do not have to be put in pigeonholes left vacant by the graduates of last year; such a procedure will not work.

Though students are all potential citizens of the future, in schools they are strictly parasitic, living on society and giving nothing. However, they are expected to prepare to become better citizens for their schooling, and society gladly carries the load of those who do so prepare. Therefore a degree of industry and development may legitimately be expected in school. But mark closely. This industry calls for the existence and direction of a will, in turn requiring an appropriate attitude on the part of teachers. This development, all else being equal, is a matter of latent talent, requiring good teaching and industry for its support. Mark also another unequivocal fact, that the graduates of any school of any kind go out into the community as citizens, in Lincoln's sense created equal, with a right to vote, each in his niche holding up his head and entitled to feel that he is in his way unique and has something to offer. What the teacher thinks of him is far less important than what the teacher does for and with him.

Create this attitude, a simple realization of simple facts that call for understanding, and at least 60 per cent of the question of rank, rating, grade, or description is settled, because good teaching is fostered and directed toward a balance in the great trio of industry, will power, and talents. Ranking or records, however done, move nearer to their rightful secondary place.

NOW comes the simple answer to grades, descriptions, or records. Please remember that this proposal for solution has been built up carefully. It has come from well over twenty years of experiment; from discussions, disputes, and wars in committees, faculties, and halls; from some thousands of students and from succeeding members of a staff of teachers no two of whom have quite agreed on the subject. Recall also, if you will, that this is a swan song, with a fair and workable solution as the goal, not a partisan victory. Remember that, if the attitude is right, there can be no more than 40 per cent error in any chosen method. Note well all these things, for the answer is simple, as all good workable answers must be.

Whether a dean or principal who must write letters of recommendation or an inner desire to make records, evaluate, and exert power, an urge present in some degree in all of us who teach, leads us to the record book, records are invariably secondary to the task at hand, the teaching itself. This cannot be subordinated to system, to debates over who holds a political majority, or to charts, forms, or report cards.

Here, then, is the answer: Use a blank sheet of paper.

Simple, yes, but less clear than was promised, you say? It is not difficult to clarify. The suggestion is meant literally; the only question is what to do with the blank sheet of paper. The points I want to bring out are these:

First, no arbitrary method is imposed on a teacher. This is not only democratic but it is in this instance essential to good teaching.

To impose an *A-F* or 0–100 system on a teacher whose primary interest is in the development of the whole student and who thus is unable to use it, is destructive demagoguery. To offer it to a novitiate or to an indifferent teacher willing to use only some quick automatic scheme, is quite proper. Surely, teachers in physical education who now spoil "all *A*" records with "*F*'s" would be better off if they could say instead: "This student attended less than half time and did nothing. Either he should complete the listed requirements or we must revise them." Dr. M., who has worked earnestly on this problem of grading and has his own preferred method, which he defines to his students, should not be hamstrung either by restriction to fixed symbols or by an insistent freedom associated with discursive records. Let him use the terms in which he can best express himself; offer him *carte blanche*.

My own choice would be simply to record most students as "promoted," on these bases: first, though I like or approve some more than others, they are not here to gain my approval; second, an atmosphere of continuous classification of faults and virtues seems unhealthy; third, description is of consequence only when there is something conspicuous to describe; and fourth, the graduates, who are professional men and women, will all hang their shingles equally high. However, I should like the privilege of saying a few words about students not simply "promoted"; for instance, "X is a smart fellow, technically passed, but he is so unscrupulous I would fear to have him as a physician"; or "Y is on the dull side, technically barely passed, but he is such a hard and steady

worker that I would expect him to be ahead of many of his associates ten years hence." How can a school operate without this sort of evidence with students of these types? However, the virtue of the blank sheet is that this evidence can be presented from those who wish, and have opportunity, to observe; whereas those teachers who meet large groups for occasional lectures would be amply justified in presenting no more than a record of attendance or a score sheet of an examination.

Second, before the administrative officers of schools are unduly disturbed, regarding the blank sheet as a freedom of choice contradictory to their pet systems, I put it to them that the goal is not to provide them with records but to teach. Though something would certainly be lost in the way of system, this proposal is intended to meet a situation in teaching; to make teaching meet the system is an administrative policy from which we already suffer too often.

Leniency as to system for its own sake would lead administrators to the discovery that the blank sheet provided the best information available on which to base such matters as promotions, dismissals, probations, and recommendations, activities which require administrative action. Since a majority of students is promoted and graduated without need for detail, use can be made of this fact. However, when it is necessary to write a letter of recommendation or make a selection, the discovery that for the first time teachers, endeavoring to express themselves in the way they find most suited to their needs, have provided something useful on which to base decisions could hardly fail to be gratifying.

It is high time that our administrators, whom we certainly need and many of whom render valiant coordinating service, realize that administrative system is secondary to the task at hand. We are trying to teach students who are trying to learn and to understand. We disagree on many things, including records, but we all agree that our primary task is to guide and help students. We cannot teach by telepathy; results depend on what the students do. By the same token, we cannot accept the thought that our best efforts will fit the administrative record card. However, the real issue administratively is what is wrong with some students, what is right with some, and what should be done about it. Granting that the blank sheet means a little more effort in some ways, it certainly means less in others. The advantages to be gained by opportunities to focus on specific problems with some information, with emphasis on the problems rather than on uniformity and rules, are not to be lightly overlooked. I believe that the proposal of the blank sheet would abolish grading committees, permit grading and other systems, reduce formal arguments, and lead to a quieter atmosphere and an increased clarity of the real issues.

· With the · Technicians ·

Higher Education's Recruitment Bulletins[1]

Competition among colleges and universities in the recruitment of students is not limited to the scramble for promising athletes that has been publicized so widely. Efforts to attract high-school Seniors who are neither qualified for, nor interested in, upholding an institution's athletic reputation may be less dramatic, but they receive more attention from administrators. Although the intensity of recruitment fluctuates with the size of the available supply of prospective Freshmen, the number of institutions in many states tends to create a need on the part of each college and university to give systematic attention to activities that will assure a Freshman class of adequate size each fall.

At least a dozen different activities are carried on by some institutions in an effort to attract new students. They are, in most instances, quite respectable activities that have become acceptable parts of effective recruitment programs. Among them, however, is one instrument that is not always respectable and certainly fails at times to be effective. This is the recruitment bulletin, a potentially useful publication that deserves more critical attention from higher education than it has so far received.

A recruitment bulletin may be defined as a booklet, pamphlet, or leaflet designed to encourage students to enroll in the institution publishing it. Despite the fact that the contents and layout of such publications vary greatly among the institutions distributing them, it is possible to develop criteria against which they may be evaluated and by which they may be developed. It is our purpose to suggest several criteria and to be presumptuous enough to indicate that a discussion of these may be a small step in the direction of focusing needed attention on this aspect of recruitment programs.

The information in a recruitment bulletin should provide an honest description of the institution publishing it. This principle applies not only to the text of the publication but also to the pictorial illustrations used in it. It precludes the use of exaggerations, unsupported claims, misleading statements of available facilities or programs, "doctored" photographs that give erroneous descriptions of the campus and facilities, and photographs of facilities not a part of the institution that are not so captioned. In other words, the bulletin must, by word and picture, describe the institution honestly and accurately.

The recruitment bulletin should avoid overemphasis of any aspect of the institution's program. In a very real sense, this is a corollary of the first principle, particularly when the overemphasis is designed to direct attention away from an institution's deficiencies. As Hyde pointed out,

[1]Reported by William W. Savage, Assistant Director, Midwest Administration Center, University of Chicago.

" . . . any attempt on the part of the institution to . . . overemphasize a particular aspect of the life of the college or university is dishonest reporting and is therefore undesirable."[2]

Some recruitment bulletins are so designed, written, and illustrated that the reader gains the impression that social activities, football, horseback riding, or a similar area of student life is of primary importance on the campus. As a result, a young student may be encouraged to enroll for an unworthy or unrealistic purpose. Furthermore, the general public forms an opinion of the institution that may be detrimental to the college's future in terms of decreased public confidence and financial support.

Persons engaged in the business of higher education are aware of the fact that the public seldom reads college and university catalogues. Much of its information comes from the newspapers, magazines, and radio. They are aware also that these media often overemphasize the less serious and less basic activities in higher education. Therefore, despite the fact that a recruitment bulletin is essentially a competitive instrument, it should present descriptions of activities in their proper perspective.

The recruitment bulletin should render service to prospective students beyond that of providing information about the institution by which it is published. This principle will be recognized as one which embodies a conception of public relations that has been adopted to some extent in recent years by business and industry.

[2]Hyde, Melvin W. *Standards for Publicity Programs in State-Supported Colleges and Universities.* New York: Teachers College, Columbia University, 1931. p. 9.

Strangely enough, the field of education, which should be synonomous with service, frequently has been less cordial to the idea. Fine voices this criticism in the following statement:

> Selfish interests will harm the educational profession. The publicity of these groups should not be solely in the interest of the organization, but in the broader aspects of education itself. This type of publicity would remove the oft-repeated statements that teachers and educators think of themselves alone and not of the public. While serving themselves, the educators can broaden their base to include the public.[3]

The failure of some recruitment bulletins to embody this spirit of service indicates not only a lack of such spirit on the part of some institutions but also a lack of understanding of the purely selfish advantages accruing from a service approach. An ideal of service is fully justified in itself. However, it is equally true that a recruitment bulletin that attempts to render service will be in much greater demand by students and high schools than one limited to extolling the merits of an institution.

Higher education should keep in mind that a bulletin may describe in an interesting manner an institution issuing it and, at the same time, provide useful information regarding careers, the choice of a college, adjustment to college life, or other topics of real concern to students. The distribution of such a publication is no problem. One published recently by a southern college was in such demand that the institution was forced to make a charge for it!

The text of a recruitment bulletin

[3]Fine, Benjamin. *Educational Publicity.* New York: Harper and Brothers, 1951. p. 241.

should be written in a style and from a standpoint appropriate to the publics for which it is designed. Some authorities say that a college or university may have thirty or more publics. However, most recruitment bulletins are designed for three—prospective students, their parents or guardians, and school counselors. Although no one publication could be directed specifically at all three, it is possible to prepare the bulletin with words and pictures that are directed at one and, at the same time, are of interest and value to the other two. In many instances, the most effective approach is that of directing the message to the student. He is the center of parental and counselor attention; that which is of interest and value to him will be of interest and value to his parents and counselors.

If a recruitment bulletin is to be prepared in a style and from a standpoint appropriate to the high-school student, it must:

1. Be written in simple language.
2. Avoid technical terminology and abstractions not easily understood. This is a continuation of the first principle but is of sufficient importance to emphasize at this point. Laurence Siegfried said that "higher education, through its publications, is the poorest sold product in America . . . The principal reason for this failure is the fact that college presidents and deans persist in writing for each other rather than for the publics to whom the publications are supposed to be of interest."[4]
3. Contain numerous illustrations. Visible verification of this requirement can be seen in any school library when students are examining printed materials dealing with colleges. A publication devoid of photographs and drawings rarely gains or holds the attention of high-school students.
4. Have an informal style of presentation. Contacts with high-school students in classrooms, school assemblies, and elsewhere will demonstrate that they are often made uncomfortable or bored by formal presentations of either oral or written material. Burlesque or superficiality are not necessary, however. There can be dignity and intelligence in informality.
5. Discuss subjects of immediate concern to college-bound youths. A publication designed for high-school boys and girls must deal with their interests and needs as they understand them.

The design, layout, printing, and paper used in a recruitment bulletin should be in accord with the best available knowledge of printing and publishing. An institution's budget will set the limits as to the design, layout, printing, and paper used in a recruitment bulletin, but within these limits the best available knowledge should be employed. Institutions should never overlook the fact that the only impression many persons have of them comes from their publications. Poor printing gives the impression of an inadequate institution. Elaborate publications may give the impression of superficiality or extravagance. There is a middle road that should be sought.

Smaller institutions rarely have persons on their staffs who are skilled in the design and other technical aspects of printing. They should seek the advice and assistance of expert printers wherever and whenever possible. Often these experts can make suggestions that not only

[4] Reck, W. Emerson. *Public Relations.* New York: Harper and Brothers, 1946. pp. 260–61.

improve the quality of a publication but may also decrease its cost.

A recruitment bulletin should be evaluated carefully by the institution publishing it. Such an evaluation should answer two questions: Does it fulfill the requirements outlined in the preceding criteria? Was it well received by the publics for which it was designed? Some would say that the evaluation should be entirely in terms of public response. However, this is only part of evaluation. If we accept the criteria already described, we must admit that adherence to them cannot be assumed simply because public response was favorable. We must remember that the public response to some freaks that have been displayed in America has been tremendous despite their essentially dishonest character.

Evaluation must be based on both adherence to other criteria and public acceptance. A publication lacking integrity and usefulness is a disservice to education. On the other hand, one which adheres to the principles of integrity and service but is not well received fails to make any contribution to the institution preparing it.

The American public is far more ignorant of the ideals, purposes, achievements, and activities of higher education than many educators realize. Therefore, all of our publications, including recruitment bulletins, must do a better job of presenting these to the people in a faithful manner. Although we may disagree as to the criteria we apply in preparing these publications designed to attract to our institutions a fair share of available students, let us agree that some criteria of integrity and usefulness should be used.

A Freshman Orientation Program[1]

The major problem which this study seeks to investigate is the actual value of the orientation program for entering students at Florida State University. The criterion of student opinion was decided upon as the best possible initial means of attacking the problem, since entering students who have actually made use of this service of the University are in the best position to say what values they received from the orientation program and in what respects it was weak or incomplete.

The study was limited to the opinions of a selected group of students who entered the University in June or September, 1951, and who were present for the orientation program which began on September 17. The majority of the students who composed the group were Freshmen, but some transfer students were also included. All had taken the American Council on Education Psychological Examination during the Orientation Week examination period. This requirement was necessary since a representative distribution of general-intelligence level was desired to provide a means of investigating the relationship between intelligence level and reactions to the orientation program.

On the basis of this examination, eight lists comprising men and women students in each of the four quarters were prepared. A sample of 30 students from each list was selected for the study, providing a total of 240 students, or approximately 22

[1]Reported by George M. Spencer, Teaching Assistant, Psychology Department, Florida State University.

per cent of the 1,091 students who took the examination.

The rating scale used to secure student opinion of the orientation program was devised by the author in the light of information gathered from various administrators who contributed to the planning of the orientation program. There were 30 items in the first part of the scale dealing with the activities of Orientation Week. The following six items from the first part will show the form and variety of inquiries:

How helpful was your educational counselor in planning with you your schedule of courses?

How well prepared were you, and how well did you understand the registration procedure before entering the gymnasium?

How extensively did you receive help in techniques of study and in budgeting your time?

To what extent were you made aware of the health services offered by the university?

How well did Orientation Week familiarize you with college rules and regulations concerning student conduct and responsibilities?

To what extent had you read and familiarized yourself with the Bulletin for New Students before the first General Assembly on Monday, September 17?

To what extent was the over-all Orientation Week of practical value to you?

A six-point scale of values was devised in which numbers were assigned which served only as symbols and not mathematical quantities: 5, superior, or of the highest possible type; 4, good, or satisfactory, sufficient, and thorough; 3, average, usual, or ordinary; 2, fair, or slightly below average; 1, poor, or of very little help; and *X*, does not apply to you, unable to attend the meeting, and so on.

The directions for the first section of the rating sheet asked that the student "indicate his own, impartial, frank opinion of the orientation program which he experienced at Florida State University by circling the appropriate number to the left of each of the . . . questions."

The second section of the rating sheet asked the student to list any comments, suggestions, or criticisms which might be of value in developing a better orientation program. He was asked to be specific and to feel free to list anything not offered in Orientation Week which he thought should have been included, as well as anything included which he considered unnecessary in the program.

A summary of the responses to the rating-scale items was gathered in a table showing the responses to each rating category expressed in percentages. This table is too long to reproduce here.[2]

Total responses to the thirty questions of the rating scale showed that approximately 17 per cent of the students believed the program to be "superior," and about 32 per cent thought it "good." Thus, over 48 per cent of the students believed the total program to be above "average." The rating category of "average" was marked by 26 per cent of all the students responding. Approximately 10 per cent of the students said that the total program was "fair," and approximately 7 per cent indicated that it was "poor." Thus, about 17 per cent of the students considered the program below "average." Approximately 9 per cent of the students said the question "did not apply" or omitted a response.

[2]A copy of this table may be obtained from the Associate Editor upon request by any reader who is interested in securing the information which it contains.

Written comments were given by 148 students, or 85 per cent of the 174 students included in the study. A total of 298 comments of various kinds were given by the 148 students. The number of comments per student ranged arbitrarily from one to six.

General comments on the orientation program showed that for the most part the students thought the program was well organized, complete, and thorough. These comments fully support the findings of the rating-scale section. One transfer student said, "All in all, the general program was very superior to that of my former university." Another student commented that the program was "very helpful, and should be promoted in a big way for every set of new Freshmen." Most students thought the orientation program provided a friendly and helpful welcome to the campus. In a typical comment the program was termed a "success, and most useful in helping new students in getting acquainted with the school." In general, the student's suggestions contributed original and helpful ideas for the improvement of the orientation program.

With all the findings in mind, it is concluded that the orientation program was of real value to the entering students. Though this conclusion is made, it must be admitted that in some areas the program might have been improved in order to assist students in making a more thorough adjustment to campus life. It is also concluded that many of the students' suggestions for the improvement of the orientatio.1 program will be of value to the administration in planning future orientation programs. These suggestions, of course, will have to be reviewed by the administration in the light of their needs for a workable program.

Opinions on General-Education Science[1]

This study investigated the convictions of students and faculty at Morgan State College on certain topics which might be included in two general-education courses in science. The findings directed attention to the preferences expressed by students, as contrasted with the opinions of a college faculty, concerning what topics of study should be incorporated into courses of this kind. The findings also provided data of value in the construction of syllabuses for these two courses.

In addition to determining the needs expressed by the students and the faculty evaluation of the topics, the study attempted to answer the following questions: What relative importance do these two groups assign to the 52 selected topics which were included in the questionnaire as a part of general-education science? What are the implications of the findings for the development of general-education science at Morgan State College?

A questionnaire was employed containing 52 selected topics which might be included as a part of general-education courses in science. A preliminary form of this questionnaire prepared by a faculty committee on general-education science was evalu-

[1]Reported by Thomas P. Fraser, Head of the Department of Science Education, and John W. King, Professor of Biology, Morgan State College. This study was reported before the American Association for the Advancement of Science on December 28, 1951.

ated by some members of the faculty outside the division of science and by the Dean of the College. On the basis of the responses received from these individuals and groups, the questionnaire was revised and circulated among the general faculty and a select group of students for completion.

included. The replies received from the students and faculty were tabulated separately for each of the three ratings, and the numbers were then translated into percentages.

The two columns indicating that the topic should be included, one for students and one for faculty, provided a range extending from the highest to

TABLE I

TOPICS RECEIVING THE TEN HIGHEST RANKS IN STUDENT RESPONSES

TOPICS	STUDENT RESPONSES		FACULTY RESPONSES	
	Per Cent	Rank	Per Cent	Rank
(1)	(2)	(3)	(4)	(5)
The rôle of the nervous system in human adjustment	99.1	1.5	81.3	29
Functional diseases of man	99.1	1.5	79.0	33.5
Human reproduction and sex education	97.3	3	86.0	17
Infectious diseases of man	96.4	4	79.0	33.5
Current events in science	95.6	5	79.0	33.5
Contributions of science and scientists to the life of our times	94.6	6.5	90.6	7
Circulation in man	94.6	6.5	86.0	17
Food, digestion, and assimilation in man	93.8	8	93.0	4
Respiration and excretion in man	92.9	9	83.4	22.5
The characteristics of living things	91.1	10	86.0	17
The rôle of the scientific method in solving problems	90.2	11	90.6	7
How man hears and sees	89.3	12	88.3	11

Returns were received from 42 per cent of the 102 members of the faculty and from 12 per cent of the 914 students enrolled in the sophomore, junior, and senior classes for the 1950–51 academic year. No attempt was made to submit questionnaires to students enrolled in science courses.

Respondents were asked to indicate their convictions on the relative importance of the inclusion of the 52 items in general-education science by checking one of three columns headed: should be included, should not be included, and uncertain as to whether or not it should be

the lowest percentage of individuals who checked the column. The range extended from 99 to 39 per cent for students and from 98 to 53 per cent for the faculty. In the findings, the convictions of students on the 52 topics were compared with those of the general college faculty.

The percentages were then ranked. For example, "the interdependence of living organisms" and "the importance of environmental factors to life" were each marked "should be included" by 98 per cent, the largest percentage of the faculty responding. Three items, "food, digestion, and assimilation in man," "the nature

and social implications of atomic energy," and "conditions determining our weather and climate" were marked "should be included" by 93 per cent, the second highest percentage. In order to rank the ten highest percentages of faculty opinion, it was necessary to include 38 topics, ranging in percentages of approval from 98 to 74. The topics receiving the ten highest percentages of student opinions are given in Table I; in the last two columns of the table appear the faculty percentages and ranks for these items.[2]

Students assigned the ten highest ranks to topics concerned with the life processes as they are displayed in man, current events in science, the contributions of science to the life of our times, and the rôle of the scientific method in solving problems. The members of the faculty placed a larger number of topics in the ten highest ranks than did students. These topics included all of those listed by students, together with problems concerned with the influence of environmental factors on life; conservation of natural resources (including human); the nature and social implications of atomic energy; drug addiction and alcoholism; and man's attempt to understand and control his physical environment. There was little or no agreement between students and faculty on the topics receiving the six lowest ranks.

Respondents were asked to suggest additional topics which might be included in general-education science, to give an explanation when the column captioned "uncertain as to whether or not [the topic] should be included" was checked, and to make statements concerning the development of mathematical competence by students. The respondents suggested two new topics for general-education science: bird migration and science and human variability.

Among reasons given for uncertainty about the selection of topics for general-education science were: lack of familiarity with the topic; the inclusion of the topic in other courses; lack of course time in which to develop the topic adequately; understanding of the topic not necessary for everyday living; and controversial nature of the topic.

Sixteen of 31 members of the faculty and twenty-three of 49 students who commented on the development of mathematical competence indicated that the College should require a course in mathematics.

[2]Space is not available to include the tables showing the 38 items receiving the ten highest faculty percentages or the items given the six lowest percentages by students and by faculty. The Associate Editor will furnish interested persons with mimeographed copies of these tables upon request.

·The·Reporter·

THE American Philosophical Society and Yale University are joint sponsors of a fifteen-year project to gather, edit, and publish all of the known papers of Benjamin Franklin. This venture has been made possible by a grant from *Life* magazine on behalf of Time, Inc.

A NEW program designed for students who are preparing for careers in mass communications will be launched by New York University during the 1954 fall semester. Existing departments teaching journalism, motion pictures, theater, television, and radio will participate in it.

THE faculty of the University of Wisconsin has voted unanimously to accept the report of its Student Life and Interest Committee concerning the registration of student organizations and speakers invited by them. The committee, in a recent statement to students, confirmed the University's traditional policy of allowing students freedom to join organizations of their choosing and to invite off-campus speakers to address them. At the same time, it warned students of the "possible consequences of membership in organizations designated by official action as subversive."

BEGINNING next autumn, University High School of the University of Chicago will extend its work to offer a high-school diploma. The decision to offer a program leading to the usual high-school diploma, meeting requirements for admission to college, was made possible by reorganization of the College of the University. Students in the high school, which is part of the Laboratory Schools of the University, will have various options in obtaining the diploma. They may qualify for the certificate by study in the high school only. They may take the major share of their work in University High, but also may take some College courses, which will be credited toward the high-school diploma and may also provide advanced College standing. The third option is that qualified students may enter the College of the University of Chicago before completing high school. The number of students so entering is expected to be relatively small, but the option of early entrance to the College will be maintained.

IN A move designed to help correctional officers cope with the increased crime rate in Massachusetts, Northeastern University has opened a program of instruction for correctional officers in penal institutions.

IN RESPONSE to a growing demand for increased part-time engineering training, the Columbia University School of Engineering is offering a full undergraduate evening course of study leading to a B. S. degree in industrial and management engineering, which began with the 1954–55

academic year. While the School of Engineering has been offering graduate work at night for several years, the industrial and management engineering curriculum is the first such program to be offered on the undergraduate level.

AVERAGE starting salaries of January engineering graduates at Illinois Institute of Technology reached an all-time high of $373 a month this year—an increase of $32 over a year ago.

TWO colleges, located in Jacksonville, Illinois—Illinois College and MacMurray College—are developing a plan for the exchange of students and faculty members so that both institutions can offer increased educational opportunities. Illinois College, first in its state to graduate a class, is celebrating its one hundred twenty-fifth year of continuous service.

AS THE first step in a long-range planning program for the University of Minnesota, a comprehensive "self-survey" questionnaire has been sent by President J. L. Morrill to more than two hundred University departments.

Information compiled from replies to the questionnaire is expected to be used to prepare a documented budget program for the improvement of operations and services during the biennium 1955–57, for a development program for the next decade, and to outline the problems which face the University as the result of growing enrollment.

AT THE recommendation of President Virgil M. Hancher of the State University of Iowa, the Iowa State Board of Education has approved the establishment of an Iowa Citizenship Clearing House to co-ordinate a state-wide research and action program aimed at preparing and encouraging college men and women to take an active part in the political life of their communities. The Clearing House will be affiliated with the institute of public affairs at the State University.

All four-year colleges and universities in Iowa will be invited to participate in the program. Policies of the Clearing House will be determined by an advisory board composed of college teachers and officials and leaders from the Democratic and Republican parties in Iowa.

AMERICAN and foreign tax lawyers, economists, and officials have joined in a Harvard Law School study of ways in which tax laws can contribute to the strength of the free world. The School's International Program in Taxation is being assisted by a grant from the Ford Foundation and is being carried out in close co-operation with the United Nations. Current research projects include studies of tax factors affecting investment in Latin America, economic and administrative problems of taxation in underdeveloped countries, and the tax structure of India. Foreign tax reports on tax-law developments for all nations will be prepared as soon as financing can be arranged. These reports are being planned in accordance with a resolution of the United Nations Economic and Social Council and at the request of American business organizations such as the Tax Executives Institute.

In addition to research projects,

the program provides special training for a select group of foreign tax officials who are in this country under the sponsorship of the United Nations Technical Assistance Administration or the United States Technical Cooperation Administration. The training combines the study of public finance, fiscal policy, and comparative tax law with the opportunity to observe the actual operation of United States tax administration in offices of the Internal Revenue Service at Boston, New York, and Washington. Special lecturers from the United Nations, the United States Government, and various universities are assisting the program staff with the training.

THE Lyric Foundation of New York City has granted Union College a gift of $2,000 as the initial endowment of the Virginia Kent Cummins Poetry Collection in Bailey Hall. In addition, the Foundation also presented the collection with several volumes of poetry, including the original manuscript of Longfellow's "The City and the Sea" and a facsimile of the original of "Thanatopsis" by William Cullen Bryant.

A SCHOLARSHIP designed to encourage interest in banking has been made available for the coming year to the University of Pittsburgh by the Peoples First National Bank and Trust Company of Pittsburgh. The scholarship will provide $1,000 for a senior male student and $500 for the endowment fund of the School of Business Administration.

FOUR college courses designed as refreshers for utility gas-industry employees will be offered at the Institute of Gas Technology, an affiliate of Illinois Institute of Technology, during the summer session. The subjects are: Natural Gas (June 14—July 2), Transmission and Distribution (July 6—23), Peak and Base Load Natural Gas Substitutes (July 26—August 3), and Utilization of Gaseous Fuels (August 16—September 3).

A SERIES of brochures dealing with occupations has been projected by the Guidance Committee of North Dakota Agricultural College. "Aviation," No. 1 of the series, has recently been published.

A UNITED approach to the problems of scholarship awards has been announced by thirteen West Coast colleges and universities in a joint agreement designed to ensure that appropriate awards go to students who most deserve them. The institutions subscribing to the agreement are California Institute of Technology, Claremont Men's College, Lewis and Clark, Mills, Occidental, Pomona, Redlands, Reed, Scripps, Stanford, Southern California, Whitman, and Whittier. It is expected that other colleges will join in the program.

The plan provides for the use of uniform applications for financial assistance from students entering any of the thirteen institutions. To distinguish between those students deserving academic recognition and those needing financial help, two types of award will be made. Honors at entrance will be accorded for academic achievement without regard to financial need. These honors will

carry no monetary grants and will be made without application by the candidates. Criteria for making the awards will include scholastic activity, citizenship achievements, College Entrance Board Examination scores, and other data.

The second type of award, a scholarship grant, is to be given in amounts determined by the degree of financial need. Because scholarship funds are limited, these grants will be awarded selectively.

THE Department of History at Harvard University and Radcliffe College will offer for the first time an eight-week summer institute on Archival and Historical Procedures, beginning June 23. The course, which is open to both men and women college graduates, is designed to meet the growing demand for historically trained archivists and administrators.

IN THE belief that one of the great problems of the modern world is the tendency of people to give up moral, ethical, and religious standards and values as they acquire knowledge and understanding of the natural sciences, the Danforth Foundation, in cooperation with Pennsylvania State University, is sponsoring a 1954 summer workshop on The Teaching of the Natural Sciences in Relation to Religious Concepts. This workshop will be held on the Penn State University campus for two weeks, beginning July 6.

THE number of candidates who have registered to take College Entrance Examination Board tests up to February of the current academic year is more than 22 per cent greater than the number for the corresponding period in 1952–53.

A WORKSHOP in educational radio and television will be held by Peabody College and Station WSM from August 2 to August 13. Participants may earn four quarter-hours of undergraduate or graduate credit. The workshop fee will be $35.00; those who wish credit will be charged an additional $8.50 a quarter-hour. Further information may be obtained from Felix Robb, Dean of Instruction, George Peabody College for Teachers.

THE Graduate School at Ohio State University will be reorganized at the beginning of the fall quarter. The new plan provides for the establishment of a Graduate Faculty. This is to be made up of members of the University faculty who are approved to serve as advisers to candidates for the Master's degree, as members of Ph.D. examining committees, or as advisers of Ph.D. candidates, together with the president and academic vice-president of the University, the dean and assistant deans of the Graduate School, the deans of the colleges, and the director of the Twilight School.

The present Graduate Council, made up of ex officio and appointed members, will be replaced by one elected by the Graduate Faculty. For the purpose of this election, the Graduate Faculty will be divided into eight subject-matter areas; each area will elect its own representatives. The Graduate Council will elect an executive committee and a curriculum committee, which will carry on the functions formerly performed by the appointed executive committee.

·Editorial·Comments·

The Most Important Part of the Job Ahead

LAST month we discussed the greatly increased demand for higher education which we shall face by 1970 and expressed the opinion that an expansion of higher-education facilities, by enlarging existing institutions, establishing new ones, or both, is inevitable. We called for immediate planning so that the expansion may be an orderly development rather than a series of emergency actions to meet recurring crises.[1]

The expansion will include two principal phases: physical facilities and teaching staff. The first of these will not be easy but it will not be so difficult or so critical as the second. If necessary to accommodate the students whom we admit, we can operate our educational plants sixteen hours a day. We can make use of high-school buildings during the hours when school is not in session. We can resort to other expedients. But we cannot work professors sixteen hours a day, or otherwise greatly increase their loads, without impairing the quality of education.

We may find it desirable to meet the demand for higher education by enlarging the main campuses of existing institutions, by establishing off-campus branches, by increasing extension courses, by founding new institutions, or in other ways. Probably we shall employ a combination of means. Whatever we do, we shall need a greatly increased teaching staff, and this cannot be developed as quickly or as easily as physical facilities can be provided.

Just how difficult the job of recruiting teachers will be depends largely on the general level of economic activity during the next fifteen years. The higher the level, the keener will be the competition of business and industry with colleges and universities for manpower. If prosperity is as great as, or greater than, it was in the early 1950's, the problem will be difficult. In that case, we shall have to use every possible means of securing the manpower that we need. We shall need to continue in service many persons who normally would have retired. We shall have to use the part-time services of high-school teachers, housewives, professional practitioners, and others who are qualified and willing to serve. To secure the services of many of these persons, we shall have to appeal to their sense of duty as well as offer them adequate financial compensation.

But no matter how successful we are in securing and using the services of part-time teachers, we shall need to recruit and train a large body of full-time members of the higher-education profession—persons who make teaching and research their vocation. They will constitute the indispensable core of the profession—the "career officers" of the higher-education army.

The development of a body of such

[*Continued on page 286*]

[1] "The Job Ahead," JOURNAL OF HIGHER EDUCATION, XXV (April, 1954), pp. 219–21.

··Reviews··

Solid in Content and Thoroughly Documented

HISTORY OF THE UNIVERSITY OF ALABAMA, VOL. I: 1818–1902, *by James B. Sellers.* University, Alabama: University of Alabama Press, 1953. xii+649 pp. $5.00.

The author, who has previously devoted several studies to the history of his native state, turns, in this one, to the nineteenth-century story of his Alma Mater. It is a straightforward account, solid in content, thoroughly documented; and, despite numerous details that may prove laborious to some readers, it is an interesting survey of a regional development of our American academic pattern. In interest and variety Alabama had no less to offer than her contemporaries; one may doubt whether the twentieth-century continuation can match its predecessor—notwithstanding the colorful Crimson Tide!

Through 570 pages Mr. Sellers traces the institution's progress from the sale and lease of University lands, the troublous early years (1831–1837) ending in riot and gunfire, to its destruction during the Civil War (when it was a military training school), the difficult days of reconstruction (when the Board of Education was said to be composed of four scalawags and four carpetbaggers), and the subsequent development to the end of the century. It is a hectic tale, touched at times with heroism. There was confusion, carelessness, and incompetence in handling the land grants. A continuous contest between faculty and students, marked occasionally by manslaughter and scarcely ever reduced to anything better than an armed truce—except when military discipline was imposed by Mr. Garland, who had lost faith in democracy—provides human interest. Police chores were a sore trial to the faculty, yet many of them exhibited scholarly attainments, notwithstanding the handicaps. As if the burdens of trying to promote intellectual life, while restraining rebellious youth, were not enough, public criticism was heaped on in abundant measure. Efforts were made, at Alabama as elsewhere, to show that science and religion were harmonious. The cry of immorality and godlessness was a familiar one, and "free education" was apt to be labeled Communism and agrarianism. Only Commencement week brought a soothing calm.

The study rests on solid sources—chiefly public federal, state, and local documents, trustee and faculty records, a few letters, newspapers, and periodicals, supplemented by some well-known published works. These are cited specifically in forty-seven pages of notes at the end of the volume. An eighteen-page index adds to the usefulness of the book for reference. Illustrations and a dash of humor lighten the text. While the book is well printed and on the whole carefully edited, one notes poor arrangement of a table (pages 368–69) and occasional slips in proofreading, e.g., "domicle," "Hallman's *Middle Ages*," "acquainted" for "acquitted," "classics" for "classes," "outword" for "outward," 1847 instead of 1947, etc., etc. (pages 4, 172, 195, 481, 486, 625, respectively).

THOMAS WOODY
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An Informed and Creative Job

"SELF-PERCEPTION IN THE UNIVERSITY: A STUDY OF SUCCESSFUL AND UNSUCCESSFUL GRADUATE STUDENTS," *by Edgar Z. Friedenberg and Julius A. Roth.* Chicago: University of Chicago Press, 1954. x+102 pp. (Supplementary Educational Monographs, No. 80). $1.75.

The authors' purpose is "to examine the relationships which successful graduate students in the social sciences establish and maintain with their university in contrast to those established and maintained by manifestly unsuccessful students" (page 1). In the context of this

study, "success or failure is not a condition but a relationship; not an attribute of an individual . . . but of a flexible process in which he is involved . . . " (page 5). For the unsuccessful students here most commonly feel "that the university is the relatively active agent in their relationship to it, and they the relatively passive beneficiary—or victim." It is perceived as "a barrier, when it is, at worst, a barren resource." "They regard the university's lack of recognition of their undemonstrated competences and its lack of response to their unexpressed needs as abandonment, and they become increasingly frightened as they become increasingly enraged" (page 71).

The derivation of such findings and the plan of the study must be briefly sketched. First, qualified staff members identified 244 social-science divisional graduate students, of whom sixty were judged highly successful and the remainder seriously unadjusted or ineffective. An indeterminate number of adequate if uninspired students were purposely not sought. The total of 244 represents roughly one-fifth of the divisional enrollment. Second, forty-nine of the original sample were chosen more or less randomly for intensive study. Third, those so selected ran a Stephenson Q-sort on 140 statements written to embody on *a priori* grounds the twenty personality rubrics developed in Murray's *Explorations of Personality*.[1] Fourth, intensive interviews were conducted with the subjects to adduce the reasons for extreme card sorts (defined as good or bad advice to an individual similar to the respondent who might contemplate graduate study at Chicago). Fifth, a cluster analysis of the card sorts was performed to locate groups sharing certain common perceptions or attitudes toward the university. Sixth, from the cluster analysis and its resultant groupings of individuals, inferences were derived regarding the commonly shared perceptions or attitudes of the groups.

Several general comments must be made on this monograph. It is first of all superbly and refreshingly literate. It is an imaginative and much-needed attempt to explore the behavior of graduate students—a species too long apart and inviolate in our educational folklore. It is an informed and creative job; its emphasis on the dynamic nature of the success-failure relationship and its probable meaning in the life of the individual goes purposely beyond the scope of the ordinary prediction study.

These are its merits. Its shortcomings are equally noteworthy. The sampling process at the level of first nominations leaves one dubious about the four-fifths excluded; at the level of the choice of forty-nine cases, doubt turns to real worry on the score of the population sampled. The semi-projective test items remain unanalyzed either with reference to Murray's dimensions or with reference to their own possible interrelations. The cluster analysis of the Q-sort results in the loss of twenty cases and the grouping of only twenty-six cases into eight clusters with too high a degree of overlapping of individuals by the criteria employed.

Thus the basic findings and generalizations derive from roughly two per cent of the graduate enrollment in the social-sciences division only. It is a considerable tribute to the authors that they present their data so persuasively as to achieve both conviction and plausibility.

For, under the duress of societal demands for more people with greater amounts of education, under personal motivations placing less weight on knowledge qua knowledge, our graduate schools may no longer be the place, if they ever were, wherein dedicated souls pursue truth and beauty. The graduate school may more appositely be considered a sort of purgatory, in which the dedicated and the dull, the bright and the beautiful, the aggressive and the dependent, the workmanlike and the impractical, pause for a little while before going on to some remote destiny, with or without a degree. Although the authors say, "we find ourselves also more grateful for the overall selective influence on society of the University's operation than we were at [the] outset" (page 76), this conclusion is reached via the case histories of some highly unprepossessing individuals; and it would be well for all graduate deans,

[1] New York: Oxford University Press, 1938.

lest they become too content, to see their constituencies through the authors' eyes.

JOHN G. DARLEY
University of Minnesota

Enlightened and Comprehensive

MEDICAL SCHOOLS IN THE UNITED STATES AT MID-CENTURY, *by John E. Deitrick and Robert C. Berson.* New York: McGraw-Hill Book Company, Inc., 1953. xxii+380 pp. $4.50.

It has been forty-four years since Abraham Flexner's survey of medical education under the aegis of the Carnegie Foundation exploded a bombshell over American medicine that was unique in its constructive rather than its destructive effects. The current evaluation will probably not have as spectacular an influence on the course of medical education, but this is not because it is less enlightened or comprehensive, but merely because the problems of today are more complex and subtle. Flexner's goals were relatively simple: a college-educated student body, a university-affiliated school and hospital, and medicine, scientific rather than sectarian. These goals have long since been achieved.

The mid-century study was undertaken by the American Medical Association on the recommendation of its Council on Medical Education and Hospitals. It is an unusually fine job; conscientious, well balanced, unprejudiced, broad in its perspectives, and remarkably aware of the basic qualities and defects of today's medical scene. It is one of the redeeming achievements of the American Medical Association and should be studied carefully by all those concerned with medical education.

The survey presents an analysis of the cost of medical education that should be of great value to those who have generously assumed the duty of raising funds for this purpose. It is interesting to learn that a proper accounting of expenditures denies the myth that medical education is an unnecessarily extravagant undertaking. If the average budget be stripped of the cost of teaching other university graduate students, dental students, and technicians, together with the cost of services to research projects and the community, the increasing expense of undergraduate medical education bears a reasonable relationship to the general national index.

The sterilizing preponderance of funds earmarked for specific projects as compared with the support of basic research is made clear by the data and sharply noted in the discussion. It may not be a corollary, but it is an analogous error to adapt the teaching of the basic sciences primarily to their clinical practicality. To quote: "If the basic science departments . . . orient their instruction toward the immediate application of the fields . . . to medicine today, what of tomorrow?" (page 322).

Curriculum studies led the survey to urge a more truly experimental attitude toward changes, and to suggest that the curriculum be "designed by the faculty as a whole" (page 6). The comment that "too much reliance is placed on tradition and authority" (page 324) is heartily supported by this reviewer (with over thirty-five years of active teaching experience).

It is refreshing to have the survey differentiate between the undergraduate goal of education and the later stage (internship and residency) of training. "Education should be concerned with teaching and study for the purpose of understanding; training has to do with habits and techniques" (page 318). The medical school should be careful to use its limited time for those phases of education never to be available again to most physicians. They include: learning the current content of the basic sciences; an inculcation of the highest quality of critique; and an exposure to the philosophy of science as derived from fundamental research.

Although the survey recognizes the obligation of a medical school (as part of a medical center) to the community, it points clearly to the danger that its function as a focus of learning may be diluted by too great a preoccupation with community service and public-health projects. "Many leaders of medical education today are busily engaged in building up large empires which serve as welfare . . . institutions, steadily spreading their influence and control

over many segments of health care" (page 320). A step long overdue is a careful discrimination between the health and welfare responsibilities of the community and those that can properly and safely be assumed by the medical school.

This reviewer's chief criticism of the survey is its casual handling of the necessity for a full-time core in the clinical departments. While in some areas of the country the rôle of the full-time professor in elevating the quality of clinical teaching has been long accepted, there are many others where it is still actively resisted. The survey could have presented evidence that would have helped to convince these resistant groups.

DANA W. ATCHLEY
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A Broad Survey

ART IN THE COLLEGE PROGRAM OF GENERAL EDUCATION, *by Ernest Ziegfeld.* New York: Teachers College, Columbia University, 1953. xi+239pp. $4.00.

This book is essentially a survey in three parts describing, first, general education; second, art, the individual, and society; and, third, art in the college program of general education.

According to Ziegfeld, general education—as it is presently conceived—is concerned with developing the student's potentialities for experiencing life fully, so that he can make the greatest contribution to society as he pursues his own interests and needs. A comparison of the purposes and functions of general education with those of special education and "uniform" education served to point out the uniqueness of the individual student and the need to build on it.

The first two parts of Ziegfeld's book are largely a reflection of the ideas of our contemporary greats in the arts, humanities, and educational fields. Persons who have read John Dewey, Susanne Langer, Lewis Mumford, and Herbert Reed—to name a few—might feel "this is where we came in"; but they should, with the expectancy of a worth-while reward, move on to Part Three, where the author's purpose in laying the ground in Parts One and Two as he did becomes obvious in the nature of the program he advocates for the arts in general education.

Part Three contains the pertinent material and constitutes the contribution Ziegfeld has made. Current trends in college art courses are carefully charted, and they show the significant shift which has taken place in the last forty years from the complete absence of art courses in our colleges and universities to the inclusion of at least some history-of-art or art-survey courses for everyone in general-education programs; and also, for the art major, from "talking about" art to "participating in" art activities.

The author is more concerned about the arts as vehicles for expressing the emotionally significant aspects of our life and of our environment than he is in what might be considered a more vital contribution an art program could make: namely, to develop in the students patterns of creative behavior generally useful in the art of living. However, the real value of exposures—through participation in art activities—to aesthetic experience and the development of aesthetic sensitivity have, as Ziegfeld points out, become recognized in education as the unique and sought-after contribution of the arts.

A growing recognition that every individual has the need and the capacity for creative action has helped to foster the growth of art programs in American education. Part Three sets down a program for the arts in education which has the purpose of providing opportunities for the development of the individual's creative potentialities and the fostering of genuinely creative expression in the arts. This purpose recognizes the need to develop creative people as well as to preserve a medium of expression in our educational system admirably suited for dealing directly with creative behavior.

Ziegfeld states five major purposes for an art program in American education which would be valuable to all those responsible for the development of curriculums in our schools. The book can be recommended to school administrators, and it should provide a strong argument for art staffs in all of our educational

institutions in support of their efforts to bring art to a position equally recognized with that of the sciences.

DONALD G. WOOD
Ohio State University

Chemical Research at Colleges

F. FROMM

[*Continued from page 244*]

12 hours of teaching and work on a thesis. Since no graduate instruction can be given at the small schools, only those which are located near a graduate school can offer the inducement of accredited advanced study; and, even then, the arrangements between the small undergraduate and the big graduate school are very difficult to negotiate, and have, so far, been successful in exceptional cases only. If independent research at small schools is to be promoted, the inducement of higher scholarship grants, perhaps $50—$100 above the rate paid at the universities, must be offered by the research foundations concerned. [Vol. XXV, No. 5]

The Most Important Part of the Job Ahead

[*Continued from page 281*]

scholar-teachers, adequate in number and in quality, is the most difficult and the most important part of the job of meeting the higher-education needs of the 1960's and 1970's. We can have a high quality of education with indifferent or even poor physical facilities; we cannot have it with poor teachers. It is to this phase of the job particularly that the best thinking of the profession and the lay public needs to be directed. R. H. E.

Professional Education in Pharmacy

MELVIN W. GREEN

[*Continued from page 262*]

the hardest question to answer is "Responsibility to whom?"

Finally, the practice of pharmacy, like that of the other professions, is regulated by a number of organizations. Space will not permit the discussion or even the listing of the many functions of such voluntary associations. Suffice it to say that they exist for purposes such as to distinguish those who are qualified to practice from those who are not; to promote and extend the use of the profession; to raise the standards of the profession; to serve as a source of authoritative information to the public, the profession, and the sister professions; to promote high standards of professional conduct and responsible practice; to create, or assist in creating, a literature; and to promote research.

In the majority of schools of pharmacy will be found a student branch of the American Pharmaceutical Association. This group encourages collective thinking early in the pharmacist's career; it is here that the student first begins to think like a pharmacist. Responsibility and professional ethics can be learned by this informal method as well as, or better than, in formal courses.

Pharmaceutical education has other problems, too; problems which stem from the peculiarities of the profession that distinguish it from others, as well as from those shared with other professions. Not the least of these is that of attempting to educate "the whole man." The student is going to be a husband or wife, a father or mother, a citizen, a churchgoer, and many other things, as well as a pharmacist. In both professional and pre-professional education, these facets of a man's life must not be lost sight of. [Vol. XXV, No. 5]

In the Lay Magazines

"Why Don't Businessmen Read Books?" by Duncan Norton-Taylor, *Fortune*, May, 1954.

In this article *Fortune* "takes a look over the businessman's bent shoulder" with a survey of his reading habits which included a questionnaire sampling of executives in a number of corporations, a poll by the Research Institute of America of 15,000 company subscribers (four-fifths of those questioned were owners, presidents, vice-presidents, treasurers, and sales or general managers), and over a hundred personal interviews.

It appears from the findings of the survey that the American executive reads five times as much as the ordinary citizen, but that most of his reading is related to his work, is routine and redundant, and is not of his own choosing. He reads it, nevertheless, because "he suffers from overconscientiousness or apprehension, or both." "He doesn't know how, or he hasn't the courage, to eliminate and select. And in the end he substitutes reading for thinking."

The executives argue that their bulging briefcases are too full of things to read to give them time for "literary books," but many of their critics claim they lack the intellectual capacity for abstract or profound reading. When executives turn to books for entertainment, they are likely to read mysteries (Mickey Spillane has many eager customers among businessmen). Books dealing with adventure, physical challenge, and high accomplishment are also popular with them.

The survey turned up some interesting statistics concerning the volume of reading done: roughly 46 per cent of the respondents said they never read any books; 27 per cent read one to six books a year; 21 per cent, seven to twelve; 15 per cent, thirteen to twenty-four; 8 per cent, twenty-five to thirty-six; 11 per cent, thirty-seven to sixty; 6 per cent, over sixty. Five per cent refused to answer.

The businessman pursues his reading "with old wives' inquisitiveness, not with intellectual curiosity" or from the desire to become a more complete person. It would seem, from his quest for relaxation in mysteries or inspiration from the examples of others, that he is "basically an anxious man."

The results of this investigation point to the conclusion that the executive has defaulted from his obligation to use his great influence for shaping the moral, philosophic, and cultural standards of American life by shutting himself off from "the most important source" of a broad education.

The point that true vision can be acquired only through an earnest study of the historians and interpreters of mankind would seem to be so obvious as hardly to need making. But the analysis of what American executives do read, or neglect to read, makes it plain that the point is only honored in the breach.

"Are Our Teachers Afraid to Teach?" by Robert M. Hutchins, *Look*, March 9, 1954.

For vast numbers of American teachers, the answer to this question is an unequivocal yes. As the result of a study of over five hundred school systems in all parts of the United States, the National Education Association was forced to the conclusion that "American teachers today are reluctant to consider 'controversial issues.'" Since the word *issue* is by definition "a point in debate or controversy . . ." (Webster), and even the presentation of so-called facts involves

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the making of judgments, teaching territory is sharply restricted. Discussion of such important subjects as the United Nations and Unesco, racial discrimination, international relations, health insurance, and of course Communism, are strictly tabu. Teachers of political science, economics, and history are particularly hard hit. "Even the teacher of literature must be careful. Didn't a member of Indiana's Textbook Commission call Robin Hood subversive?" Regardless of subject-matter, fear pervades most classrooms.

Teachers are especially vulnerable to attacks by pressure groups. Unsubstantiated charges against them are in most cases sufficient to ensure their dismissal or, falling short of that, to injure their professional future. Teaching competence will not protect them. This seldom, if ever, enters the question. "In the investigations that have gone on around the country," Mr. Hutchins writes, "I do not recall one in which it was charged that the teacher was not a good teacher." Teachers are generally compelled by school boards or trustees to resign if they avail themselves of the "constitutional protection open to the American citizen in criminal trials . . ." by refusing to answer questions put to them by their inquisitors. There is already a serious undersupply of teachers. One reason for this is that they are paid notoriously low wages. "To the burden of economics we are adding the ordeal of inquisition."

The most we should ask of our teachers is impartial representation of all sides of a problem. The least we should ask for our children is the free exploration of ideas. "Those who oppose free inquiry can be neither American nor free."

Mr. Hutchins, former chancellor of the University of Chicago, now an associate director of the Ford Foundation, sums up as follows:

> If we really want education in this country, we will have to pay teachers decent salaries, give them the status that their importance to society justifies and ensure them the freedom that their work and their calling demand.
>
> No country ever needed education more than ours does today.

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